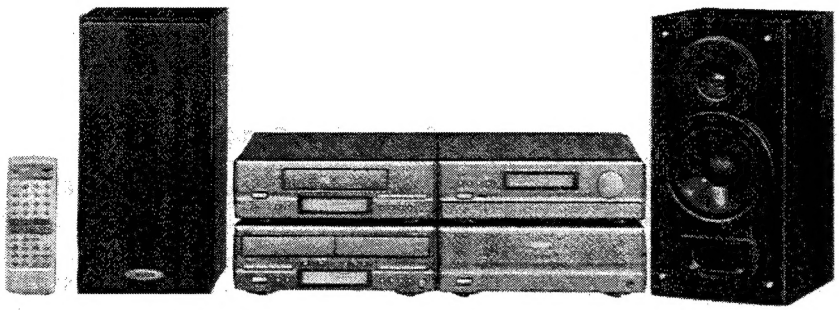
DENON

Hi-Fi Personal Component System

SERVICE MANUAL

PERSONAL COMPONENT SYSTEM

UNIT No. UCD-250 (Compact Disc Player)



COMPACT disc DIGITAL AUDIO

- **The D-250 Personal Component System consists of the following:**

Power Amplifier	UPO-250
MW, LW, FM Tuner / Pre Amplifier Section	UTP-250
Remote Control Unit	RC-154
Cassette Deck Section	UDRW-250
CD player Section	UCD-250

MAIN FEATURES

- **AM/FM 30-station random preset tuner**
  Random presetting permits easy operation and will be convenient for the increased number of FM stations in the future.
- **Independent power amplifier designed for quality sound**
  High quality 50 W per channel power amplifier with large speaker terminals.
- **New SDB control**
  The Super Dynamic Bass control circuit delivers clear bass sound.
- **Super linear converter and high performance digital filter**
  Denon's unique systems for preventing loss of CD sound quality permit excellent sound field reproduction.
- **Editing circuit**
  Automatic selection of CD tracks for minimum blank space on the tape when recording.
- **Dolby B, C and HX PRO circuits**
  For high quality sound in playback and recording.
- **CD SRS circuit**
  CDs can be recorded at the touch of a button.
- **Easy-to-use remote control unit**
- **Auto on/off function**
  This function switches on the power with just a press of the CD or cassette deck play button. The power is switched off about 10 minutes after playback has finished.

BEFORE USING

- **Moving the system**
  To prevent short-circuiting or damage of connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.
  In addition, always remove CDs before moving the system. If not, the CD may be scratched.
- **Before turning the power on**
  Check again that all connections are proper and that the connection cords are not damaged. Always set the power switch to the STANDBY position before disconnecting connection cords.
- Humming may be produced if the system is set near a TV set or other audio component or its connection cords. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, as this may cause dew (water droplets) to form in the set, preventing proper operation. If this happens, wait one hour before using the system.
- **Be sure to keep this manual**
  The illustrations used in this manual may differ from the actual system.

Check that the following parts are included in the package aside from the main unit:

① Operating Instructions 1
② FM Antenna 1
③ AM Loop Antenna 1
④ Remote Controller 1
⑤ R6P/AA batteries 2
⑥ System Connectors 1 & 2 2
⑦ FM Antenna adaptor 1
⑧ Pin Plug Cords 4

NIPPON COLUMBIA CO., LTD.

GENERAL SECTION

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CD Player Unit	UCD-250	1S
Cassette Deck Unit	UDRW-250	1S
Top Cushion	503 1002 001	1
Top Spacer	502 0763 018	1
Top Spacer	502 0763 034	1
Space Cushion	502 9124 001	2
(Master) Carton	501 1626 012	1
┌Envelope Sub Assy		1S
├Envelope	505 8006 019	1
├Notice Sheet	515 0601 008	1
├Inst. Manual	511 2421 006	1
├Loop Antenna	231 0922 009	1
├Remocon (RC-154)	499 0228 008	1
└FM Ant. Ass'y	395 0019 025	1
┌Envelope Sub Ass'y		1S
├Envelope	505 9119 002	1
└Output Cord Ass'y	009 9022 015	2

SPECIFICATIONS

- **Tuner-preamplifier (UTP-250)**

Reception Frequency Range:	FM: 87.50 MHz to 108.00 MHz AM: 522 kHz to 1611 kHz (MW), 153 kHz to 279 kHz (LW)
Receiving Sensitivity:	FM: 1.5 µV, 75 ohms (SN ratio 30 dB) AM: 20 µV (SN ratio 20 dB, MW), 35 µV (SN ratio 20 dB, LW)
FM Stereo Separation:	40 dB (1 kHz)
Bass Adjustment:	100 Hz ±8 dB
Treble Adjustment:	10 kHz ±8 dB
Super Dynamic Bass:	80 Hz +8 dB
Jacks:	PREOUT: Output jacks PHONO: Input jacks DAT: Input jacks, recording output jacks Processor: Processor input/output jacks
Dimensions (max.):	270 (W) × 86 (H) × 330 (D) mm (10-5/8" × 3-25/64" × 13")
Weight:	3.2 kg (7 lbs 10 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	18 W

- **Amplifier (UPO-250)**

Rated Output Power:	50 W + 50 W (20 Hz to 20 kHz, 8 ohm)
Jacks:	6.3 mm headphone jack
Dimensions (max.):	270 (W) × 96 (H) × 330 (D) mm (10-5/8" × 3-25/32" × 13)
Weight:	4.1 kg (9 lbs 1 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	140 W

- **CD Player (UCD-250)**

Wow and Flutter:	Below measurable limits (±0.001% W. Peak)
Sampling Frequency:	44.1 kHz
Light Source:	Semiconductor
Dimensions (max.):	270 (W) × 86 (H) × 313 (D) mm (10-5/8" × 3-25/64" × 12-21/64")
Weight:	3.1 kg (6 lbs 13 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	15 W

- **Cassette Deck (UDRW-250)**

Type:	Horizontal 4-track, 2-channel auto reverse stereo cassette deck
Heads:	1 hard permalloy recording/playback head, 1 hard permalloy playback head, and 1 double-gap ferrite erase head
Tape Speed:	4.75 cm/s
Noise Reduction Circuits:	Dolby B and C NR
Usable Tapes:	Normal, chrome, and metal tapes
Dimensions (max.):	270 (W) × 96 (H) × 318 (D) mm (10-5/8" × 3-25/32" × 12-33/64")
Weight:	4.4 kg (9 lbs 11 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	18 W

- **Remote Control Unit (RC-154)**

Type:	Infrared pulse
Number of Buttons:	41 (including 1 slide switch)
Dimensions (max.):	60 (W) × 177 (H) × 18 (D) mm (20-23/64" × 6-31/32" × 45/64")
Weight:	130 g (Approx. 6.4 oz) (including batteries)

* Maximum dimensions include controls, jacks, and covers. (W) = width, (H) = height, (D) = depth

- For improvement purposes, specifications and functions are subject to change without advanced notice.

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

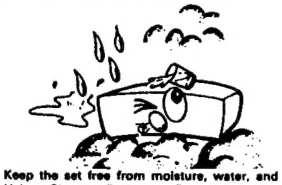
VARO! AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

VARNING - OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

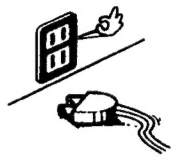
NOTE ON USE/HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION/NOTE SULL'USO

- Avoid high temperatures
  Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen
  Beachten Sie, daß eine zureichende Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Eviter des températures élevées
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte.
  Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.

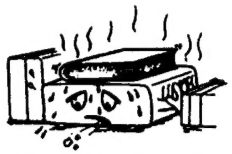
- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon.
- Manneggiate il filo di alimentazione con cura.
  Agite per la spina quando scollegate il cavo dalla presa.



- Keep the set free from moisture, water, and dust.
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et la poussière.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.

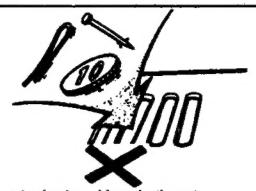


- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.



*(For sets with ventilation holes)

- Do not obstruct the ventilation holes.
- Die Belüftungsöffnungen dürfen nicht verdeckt werden.
- Ne pas obstruer les trous d'aération.
- Non coprite i fori di ventilazione.



- Do not let foreign objects in the set.
- Keine fremden Gegenstände in das Gerät kommen lassen.
- Ne pas laisser des objets étrangers dans l'appareil.
- E' importante che nessun oggetto è inserito all'interno dell'unità.

- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen.
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.
- Assicuratevvi che l'unità non venga in contatto con insetticidi, benzolo o solventi.

- Never disassemble or modify the set in any way.
- Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern.
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontate mai, nè modificate l'unità in nessun modo.

SAFETY IMPORTANT

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

(UTP-250 only)

IMPORTANT
(BRITISH MODEL ONLY)

The wires in this mains lead are coloured in accordance with the following code:

Blue:	Neutral
Brown:	Live

The colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VAROITUS! LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

VARNING– OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

"CLASS 1
LASER PRODUCT"

Irregularities
- If the system should smoke or produce strange smells, immediately set the power switch to the STANDBY position, unplug the power cord, and contact your store of purchase.

Unregelmäßigkeiten
- Sollte das Gerät Rauch produzieren oder eigenartig riechen, stellen Sie den Netzschalter sofort auf die Position STANDBY (Bereitschaft), ziehen Sie den Netzstecker heraus und kontaktieren Sie Ihren Händler.

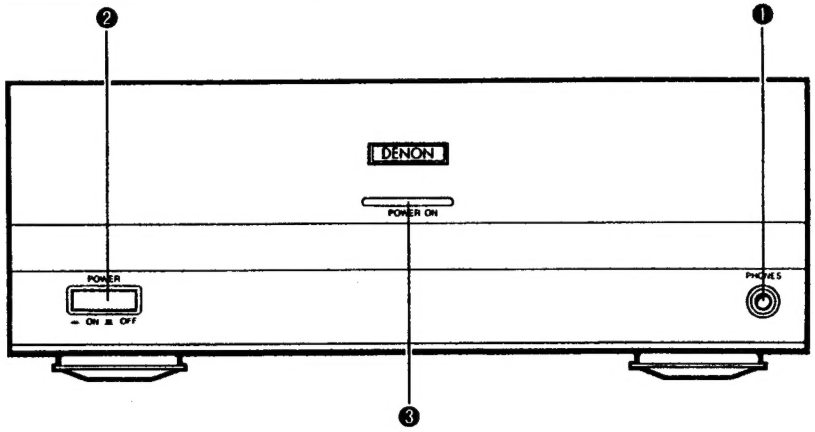
Anomalies
- Si de la fumée sort de la chaine ou des odeurs bizarres, placer l'interrupteur d'alimentation immédiatement sur la position de veille (STANDBY), débrancher le cordon d'alimentation et contacter le distributeur.

Irregolarità
- Qualora il sistema dovesse produrre del fumo o degli odori strani, collocate immediatamente l'interruttore di accensione nella posizione STANDBY, disinnestate il filo di alimentazione e rivolgetevi al negozio dell'acquisto.

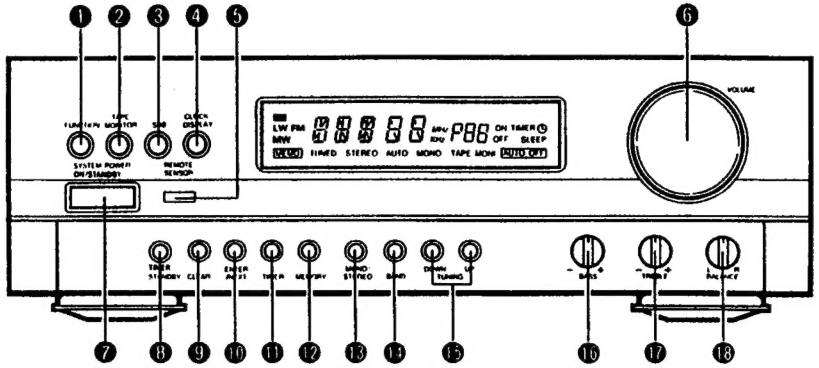
"SERIAL NO. _____
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE"

FRONT PANEL/FRONTPLATTE/PANNEAU AVANT/PANNELLO ANTERIORE

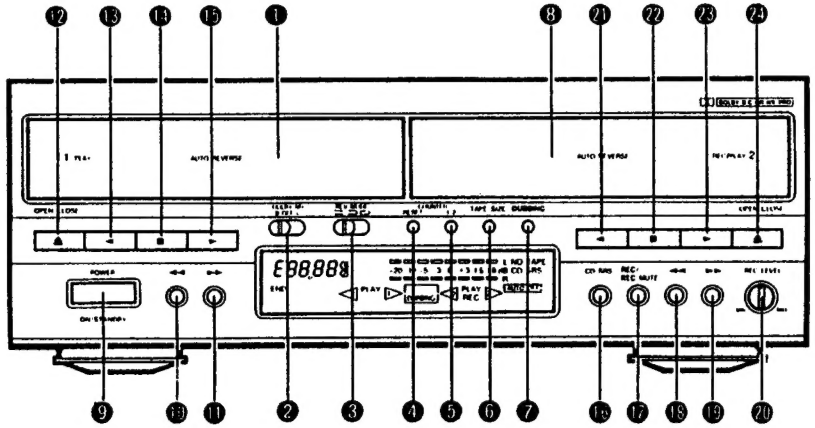
POWER AMPLIFIER
LEISTUNGSVERSTÄRKER
AMPLIFICATEUR DE PUISSANCE
AMPLIFICATORE DI POTENZA



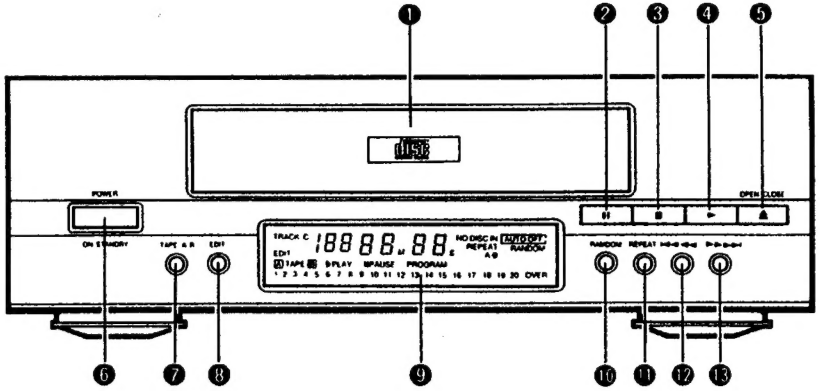
TUNER-PREAMPLIFIER
TUNER-VORVERSTÄRKER
TUNER-PREAMPLIFICATEUR
SINTONIZZATORE-PREAMPLIFICATORE



CASSETTE DECK
CASSETTENDECK
PLATINE CASSETTE
PIASTRA A CASSETTE



CD PLAYER
CD-SPIELER
LECTEUR CD
DISPLAY DELLA PIASTRA A CASSETTE



- As an aid to better understanding the operation method, the illustrations used in this manual may differ from the actual system.
- Als Hilfestellung zum besseren Verständnis der Betriebsmethode, erlauben wir uns den Hinweis, daß sich die Abbildungen in dieser Bedienungsanleitung leicht von dem aktuellen System unterscheiden.
- Pour faciliter la compréhension de la méthode de fonctionnement, les illustrations utilisées dans ce manuel peuvent être différentes de celles de la chaîne réelle.
- Per rendere la spiegazione del metodo operativo più facile, le illustrazioni usate in questo libretto delle istruzioni possono differire dal sistema stesso.

CONTENTS

Check that the following parts are included in the package aside from the main unit:

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② FM Antenna 1
③ AM Loop Antenna 1
④ Remote Controller 1
⑤ R6P/AA Batteries 2
⑥ System Connectors 1 & 2 2
⑦ FM Antenna Adaptor 1
⑧ Pin Plug Cords 4

1 MAIN FEATURES

- **AM/FM 30-station random preset tuner**
  Random presetting permits easy operation and will be convenient for the increased number of FM stations in the future.
- **Independent power amplifier designed for quality sound**
  High quality 50 W per channel power amplifier with large speaker terminals.
- **New SDB control**
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  CDs can be recorded at the touch of a button.
- **Easy-to-use remote control unit**
- **Auto on/off function**
  This function switches on the power with just a press of the CD or cassette deck play button. The power is switched off about 10 minutes after playback has finished.

2 BEFORE USING

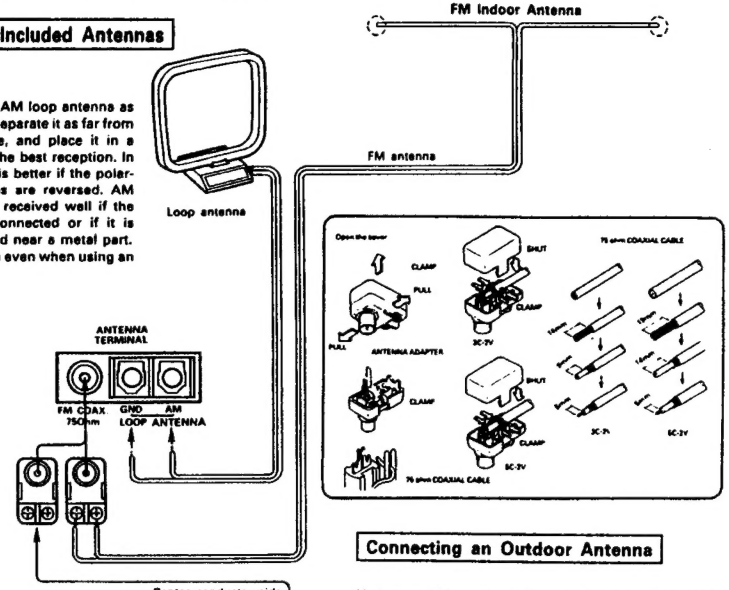
Note the following points before using the D-250.

- **Moving the system**
  To prevent short-circuiting or damage of the connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.
  In addition, always remove CDs before moving the system. Failing to do so may result in scratched CDs.
- **Before switching on the power**
  Check again that all connections are proper and that the connection cords are not damaged. Be sure to disconnect the power plug before disconnecting or connecting the connection cords.
- Hum may be produced if a TV set or another audio component is set near this system or their connection cords are nearby. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, since t his may cause water droplets (condensation) to form in the equipment, preventing proper operation. If this happens, wait one hour before using the system.

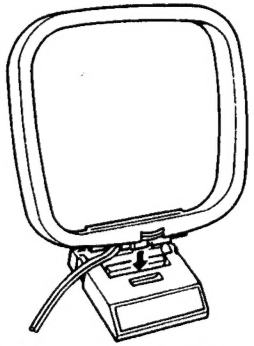
3 ANTENNA CONNECTIONS

Connecting the Included Antennas

AM Loop Antenna
Assemble the included AM loop antenna as shown in the diagram, separate it as far from the system as possible, and place it in a position that provides the best reception. In some cases, reception is better if the polarities of the connections are reversed. AM broadcasts will not be received well if the loop antenna is not connected or if it is connected but is located near a metal part. Attach the loop antenna even when using an outdoor AM antenna.



Assembling the Loop Antenna

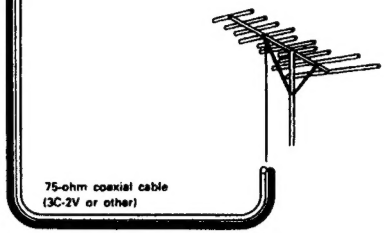


- Remove the tie fastening the loop antenna's lead and connect the lead to the antenna terminals.

- Separate the FM and AM antenna wires from the system connector wires.

Connecting an Outdoor Antenna

Use an outdoor antenna if reception cannot be heard clearly with the included antenna. Change the location, height, and direction of the antenna to find the position of best reception, then fix the antenna in that position.

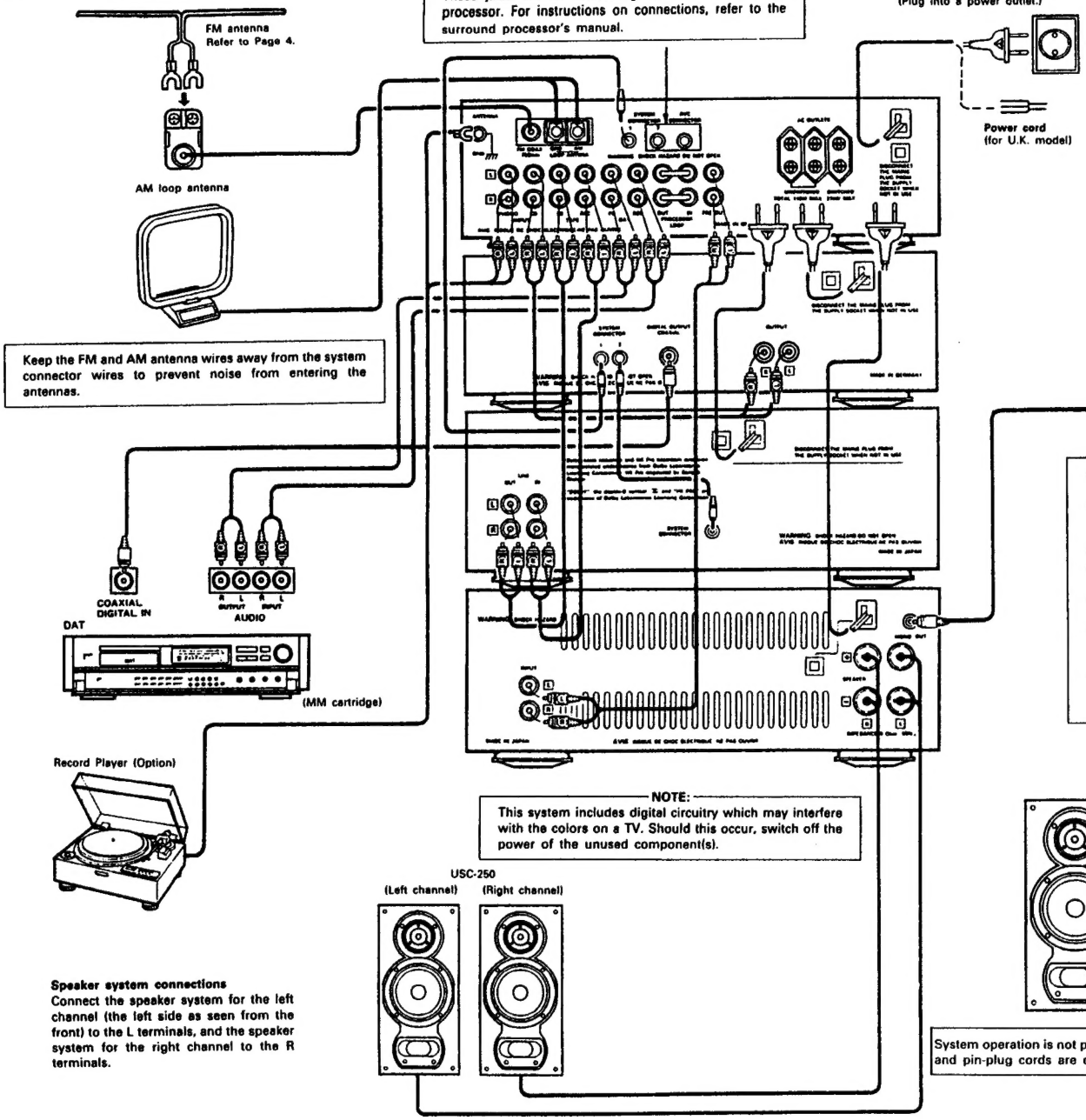


- Connect the outdoor antenna using 75-ohm coaxial cable. This will help shield the antenna from external noise.

• Places for Installing Outdoor Antennas

- Install the outdoor antenna facing a broadcast station's transmission antenna.
  When surrounded by buildings or hills, place the antenna in the location which provides best reception and try changing the direction of the antenna to obtain optimum reception.
- Do not install the antenna under power lines.
  It is extremely dangerous for the antenna to come into contact with a power line.
- Install away from roads and train tracks to prevent noise from cars and trains.
- Do not install the antenna too high, as it may be hit by lightning.

4 CONNECTIONS



Keep the FM and AM antenna wires away from the system connector wires to prevent noise from entering the antennas.

AC OUTLET

Always connect the amplifier's (UPO-250) power cord to this AC outlet.

- SWITCHED (total capacity of 370 W)
  The power of this outlet is switched on and off with the tuner's power switch.
  Plug the power amplifier's power cord into this outlet.
- UNSWITCHED (total capacity – 110W)
  The power is supplied to these outlets regardless of whether or not the tuner's power switch is turned on or off.
  Plug the power cords of the CD player and cassette deck into these outlets.

MONO OUT jack

Jack for connecting a subwoofer (super woofer) with built-in amplifier.

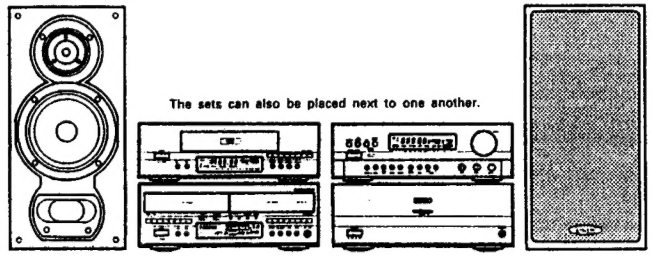
- Do not plug the power cord into the outlet until all connections have been completed. Connect properly as illustrated in the diagram.
- Check the left and right channels, then properly connect the left speaker's terminals to the amplifier's L terminals and the right speaker's terminals to the amplifier's R terminals.
- Insert the plugs securely. Incomplete connections can cause noise.
- When the power cord has been disconnected from the power outlet, wait about 5 seconds before plugging it back in.
- **Use the AC OUTLET to plug in the amplifier CD and Cassette deck. Never use it for other appliances, such as hair driers, etc.**
- Note that grouping connection cords (pin-plug cords) together with power cords or setting them near power transformers can cause hum or other noise.
- Note that if the input jacks selected with the FUNCTION button are open (if a component is not connected), there might be leakage of the reproduced sound of a component connected to another set of input jacks.

NOTE:

This system includes digital circuitry which may interfere with the colors on a TV. Should this occur, switch off the power of the unused component(s).

Speaker system connections

Connect the speaker system for the left channel (the left side as seen from the front) to the L terminals, and the speaker system for the right channel to the R terminals.



The sets can also be placed next to one another.

NOTE:

System operation is not possible and the power cannot be turned on and off unless all system connector cords and pin-plug cords are connected.

5 PART NAMES AND FUNCTIONS

POWER AMPLIFIER

❶ **PHONES jack**
When using headphones, plug them in here.
The sound from the speakers is cut when headphones are plugged in.

❷ **POWER switch**
When pressed once, the power is switched on and the power indicator LED lights up. This switch is usually left on.

❸ **Power indicator LED**
This LED will flash for about 5 seconds until the speaker relay goes on, then it will light steadily. The LED will also flash when the protection circuit is activated. Should this occur, switch the power off, check the speaker connections, then switch the power on again.

TUNER-PREAMPLIFIER

❶ **FUNCTION button**
Use this to select the program source.
The selection changes in the order of TUNER, TAPE, CD, PHONO, and DAT.

❷ **TAPE MONITOR button**
Use this to listen to the sound of the tape. When used with a 3-head tape deck, the sound can be monitored while recording.

❸ **SDB (Super Dynamic Bass) button**
Press this button for more powerful bass sound.

❹ **CLOCK/DISPLAY button**
This button switches the display to the reception frequency or the function display and time display.

❺ **Remote control sensor**
The remote control unit is pointed toward this sensor and operated.

❻ **VOLUME control**
This control adjusts the overall volume. Turn clockwise ( ) to increase the volume, counterclockwise ( ) to decrease it.

❼ **SYSTEM POWER button**
(This switch can switch on the power for the entire system.)
Press to switch the power on, press again to put the system into standby.

❽ **TIMER STANDBY button**
Press this button to cause the timer to operate at the set time. When the timer has been set, pressing this button will light up the display's timer standby indicator ( ), and pressing it again will switch off the standby indicator. The timer will not function when the standby indicator is off.

❾ **CLEAR button**
This button is used to change the current time setting or the contents of the set timer.

❿ **ENTER/NEXT button**
This is used when setting the timer, setting the current time, and when advancing to the next operation.

⓫ **TIMER button**
This is used to set the timer.

⓬ **MEMORY button**
This button is used when presetting FM, MW and LW stations.

⓭ **MONO/STEREO**
(FM stereo mute/mono) button
This button will not function when receiving MW/LW broadcasts.
(For FM reception)
STEREO (mute): Use this mode to receive FM broadcasts in stereo.
("AUTO" appears on the display.) The muting circuit is activated to cut the hiss noise between stations.
MONO: In this mode, FM broadcasts are received in monaural, regardless of whether they are broadcast in monaural or stereo.
Set to the mono mode if there is much noise in the stereo mute mode (with "AUTO" displayed) or if the signals are weak.

⓮ **BAND (FM/MW/LW selection) button**
With each press, the band is switched in the order of FM, MW, LW, FM, and so on.

⓯ **TUNING UP and DOWN buttons**
Use these to tune in FM, MW or LW stations and when setting the clock and timer.

⓰ **BASS control**
Use this control to adjust the bass.

⓱ **TREBLE control**
Use this control to adjust the treble.

⓲ **BALANCE control**
Use this control to adjust the balance of the volume between the left and right channels. The volume is the same for the left and right channels when the control is at the center.

CASSETTE DECK

❶ **Cassette tray: Deck 1**
The cassette tray opens outward when the OPEN/CLOSE button is pressed. Insert the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button again.

❷ **DOLBY NR selection switch**
Use this switch to select the Dolby NR mode: off, B type or C type. During playback, set this switch to the same mode in which the tape was recorded.

❸ **REV MODE switch**
Use this switch to set the reverse mode to one of the following modes: (single side mode), (two-side mode), or (continuous mode).
Refer to Page 13 for details.

❹ **COUNTER RESET button**
Press this button to reset the tape counter to 00.00.

❺ **COUNTER 1/2 selection button**
Use this button to change the counter display between deck 1 and deck 2.

❻ **TAPE SIZE setting button**
Set the time of the tape to the length of the tape being used.
Refer to Page 8 for details.

❼ **DUBBING button**
Simply pressing this button permits dubbing (copying) a tape from deck 1 to deck 2.

❽ **Cassette tray: Deck 2**
The cassette tray opens outward when the OPEN/CLOSE button is pressed. Insert the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button again.

❾ **POWER ON/STANDBY switch**
This switch turn the power of the cassette deck on and off.

❿ **◀◀ (rewind) button: Deck 1**
Press this button to rewind the tape in deck 1. Also, if pressed during playback in the ▶ (forward) direction, the tape is rewound to the beginning of the currently playing selection. If pressed during playback in the ◀ (reverse) direction, the tape is forwarded to the beginning of the next selection (on the back side of the tape).

⓫ **▶▶ (fast-forward) button: Deck 1**
Press this button to fast forward the tape in deck 1. Also, if pressed during playback in the ▶ (forward) direction, the tape is fast forwarded to the beginning of the following selection. If pressed during playback in the ◀ (reverse) direction, the tape is rewound to the beginning of the currently playing selection (on the back side of the tape).

⓬ **⏏ OPEN/CLOSE button: Deck 1**
Press this button to open and close the cassette tray. The button also works in the standby condition.

⓭ **◀ (reverse play) button: Deck 1**
Press this button to begin playback in the reverse direction on deck 1.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

⓮ **■ (stop) button: Deck 1**
Press this button to stop the moving tape in deck 1.

⓯ **▶ (forward play) button: Deck 1**
Press this button to begin playback in the forward direction on deck 1.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

⓰ **CD SRS (CD synchronized recording button)**
Use this button for simple CD synchronized recording.
Refer to Page 15.

⓱ **REC/REC MUTE**
(recording/recording mute) button
To record, press the REC/REC MUTE button and the ▶ play button only. If only the REC/REC MUTE button is pressed, the deck is set to the recording pause mode. If this button is pressed again, or pressed during recording, the recording mute mode is set for approximately 5 seconds, after which the deck is set to the recording pause mode.

Recording pause mode
When the play button of the CD player is pressed in the recording pause mode, the CD begins to be recorded.

⓲ **◀◀ (rewind) button: Deck 2**
Press this button to rewind the tape in deck 2. Also, if pressed during playback in the ▶ (forward) direction, the tape is rewound to the beginning of the currently playing selection. If pressed during playback in the ◀ (reverse) direction, the tape is forwarded to the beginning of the next selection (on the back side of the tape).

⓳ **▶▶ (fast-forward) button: Deck 2**
Press this button to fast forward the tape in deck 2. Also, if pressed during playback in the ▶ (forward) direction, the tape is fast forwarded to the beginning of the following selection. If pressed during playback in the ◀ (reverse) direction, the tape is rewound to the beginning of the currently playing selection (on the back side of the tape).

⓴ **REC LEVEL (recording level) control**
Use this control to set the recording level.

㉑ **◀ (reverse play) button: Deck 2**
Press this button to begin playback in the reverse direction on deck 2.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

㉒ **■ (stop) button: Deck 2**
Press this button to stop the moving tape in deck 2.

㉓ **▶ (forward play) button: Deck 2**
Press this button to begin playback in the forward direction on deck 2.
When this button is pressed in the standby condition, the power is automatically switched on and the deck plays.

㉔ **⏏ OPEN/CLOSE button: Deck 2**
Press this button to open and close the cassette tray. The button also works in the standby condition.

- Deck 1 is for playback only and deck 2 is for recording and playback.
- After the power cord is plugged into an outlet, a mechanical sound is produced from the cassette deck when the power switch is pressed on the first time only. This is the sound of the cassette mechanism being set to the proper operating position, and is not a problem with the deck.

CD PLAYER

❶ **Disc tray**
Compact discs are loaded to the disc tray.

❷ **II Pause button**
Press this button to stop CD play temporarily.
Press the play button to resume CD play.

❸ **■ Stop button**
Press this button to stop CD play.

❹ **▶ Play button**
Press this button to start playing the disc. If pressed when the disc tray is open, the disc tray closes and playback begins. Pressing this button in the standby mode automatically switches on the power and plays the disc.

❺ **⏏ OPEN/CLOSE button**
Press this button to open the disc tray. Press once to open the disc tray forward, then press again to close the disc tray. This button also operates in the standby mode.

❻ **POWER ON/STANDBY switch**
Press this to switch the CD player's power on and off.

❼ **TAPE A/B button**
Press this button during editing to switch the display between the display of program contents for tape side A and the display for tape side B.

❽ **EDIT button**
Press this button for edited recording (dividing the tracks to be recorded to fit onto sides A and B of a tape according to the length of the tape).

❾ **Display**
This displays the time and the settings of the various buttons.

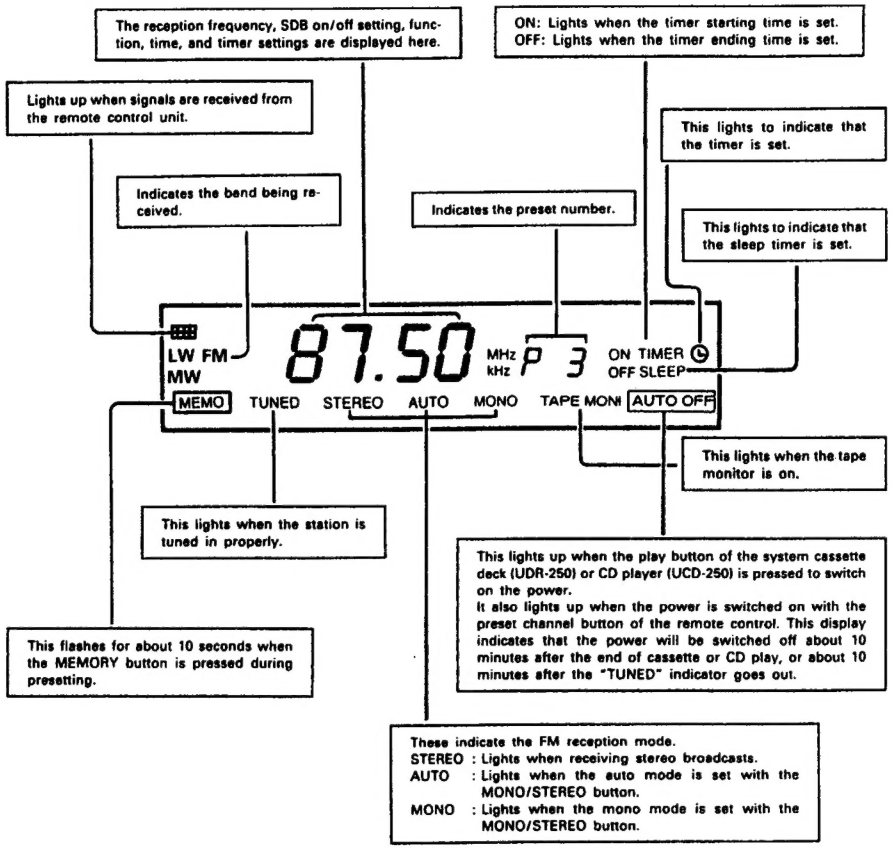
❿ **RANDOM button**
Press this button to play the disc tracks in random order.

⓫ **REPEAT button**
Press this button for repeat play.

⓬ **⏮ ◀◀ (automatic/manual search backward button)**
Press this button to move the pickup back to the beginning of the desired track.
Press in the play, stop, or pause mode to move back a number of tracks equal to the number of times the button is pressed.

⓭ **▶▶ ⏭ (automatic/manual search forward button)**
Press this button to move the pickup forward to the beginning of the desired track.
Press in the play, stop, or pause mode to move forward a number of tracks equal to the number of times the button is pressed.
* The automatic search function is set if button ⓬ or ⓭ is released within 0.5 seconds, and the manual search function is set if the button is held in for more than 0.5 seconds.
* Buttons ⓬ and ⓭ do not function in the pause mode.

TUNER-PREAMPLIFIER DISPLAY



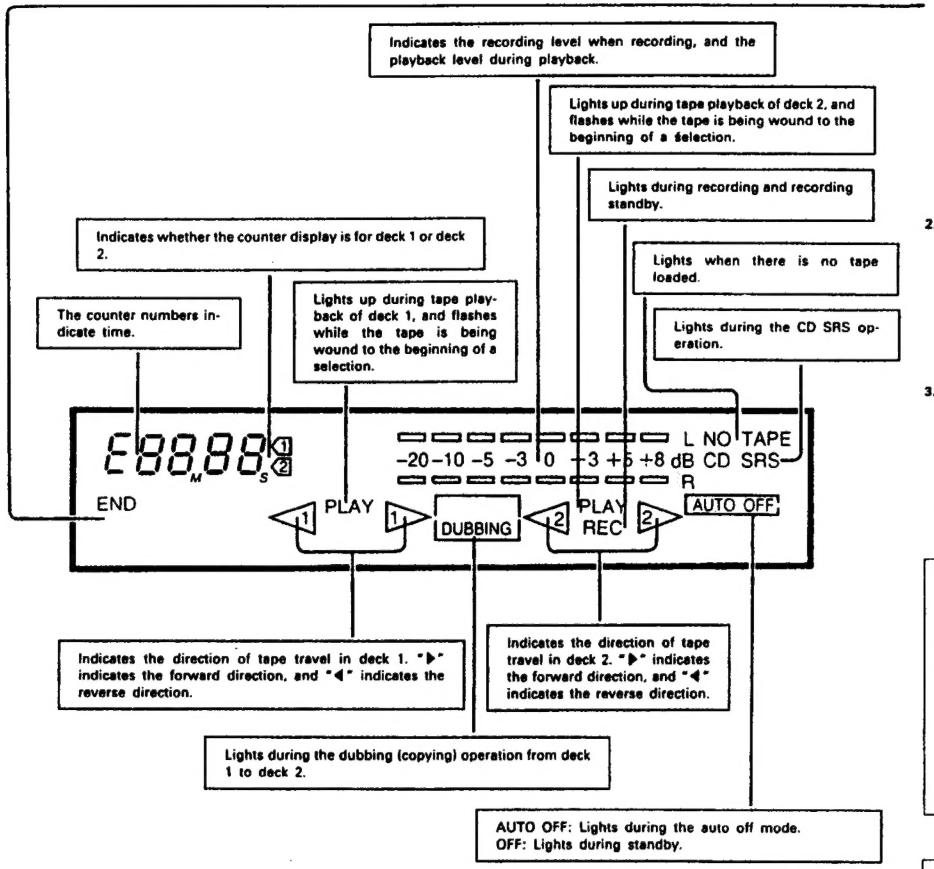
Trap Door

- To open the trap door, press area of the PUSH OPEN ⏏ indication at the upper right of the panel. When the door lock is released, open the door with your hand.
- To close the trap door, press the indicated area at the upper right of the panel and lock the door.

NOTE:

- The " ◷ " of the timer standby display will not light up unless the current time and the timer have been set.
- When the FUNCTION button is used to switch the function while "AUTO OFF" is lit, the auto on/off mode is cancelled and the display goes out.
  Also note that when the play button of one of the components (CD player or cassette deck) is pressed while "AUTO OFF" is lit, causing the function to change, the auto on/off mode will not be cancelled and the display will remain lit.

CASSETTE DECK DISPLAY

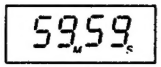


The direction of tape travel indicators also serve to indicate whether a cassette tape is loaded.
These indicators do not light up when the tape is stopped or when there is no cassette tape loaded.

USING THE TAPE COUNTER

1. Tape Counter Display

- The tape counter indicates the elapsed time of the running tape in minutes and seconds.



- The counter is reset to 00.00 when the tape is ejected and loaded, and by the COUNTER RESET button.
- Making a memo of the contents of a recording and the range of the counter numbers while you are recording or playing back a tape will be convenient when you search for a portion of the tape you would like to listen to or when you search for the next portion you would like to record.

2. Tape Size Selector

- Match the tape size with the tape being used.
- Press the TAPE SIZE button until the desired tape size is displayed, then press the button again while the tape size is being displayed to set it. With each press of the button, the display will change according to the following cycle.

→ C46 → C50 → C54 → C60 → C74 → C90 → C100 → C120 →
C54L ← C50L ← C46L ←

※ C46L, C50L, and C54L indicate large-hubbed cassettes.
※ Only values included in the display can be set.

3. END Display

This display indicates that the tape is reaching the end during recording or playback.

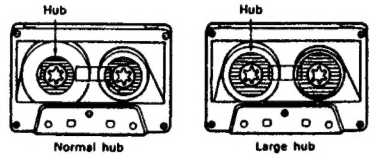
- Match the tape size with the tape you are going to use.
- The END indicator will start flashing when the remaining time to the end of the tape is about 5 minutes. (Note that this will be the case only when the TAPE SIZE setting and the length of the tape are in agreement. When the tape used and the TAPE SIZE setting differ, a large error may arise in the time at which the END indicator starts flashing.)
- When the tape has been recorded or played back to its end, the flashing of the END indicator will change to steady lighting.

※ Note that this indicator is only a guide and its operation will vary according to the size of the hub diameter of the tape as well as with differences of tape thickness, so that the END indicator might not light in some cases.

NOTE:

This deck's linear tape counter has been set for the following cassette tape lengths: C46, C50, C54, C60, C74, C90, C100, C120, C46L, C50L, and C54L. (L indicates large-hubbed cassettes.)
Using a tape that lies outside of this range, or a tape with a different length than the displayed lengths, will result in error. When using a tape that is not included in the TAPE SIZE selection, select the tape size closest to the length of the tape to be used. (This will reduce the error.)
The linear tape counter is not accurate like a clock. The thickness of the tape will differ depending on the type of tape used (tape position and time), and so there will be some error introduced. Error also arises from the difference between tapes with smaller and larger hubs.

- Large hubs are ones with a diameter of about 27 mm. Note that if the hub is larger than this, there will be a large error in indicating the tape travel time.



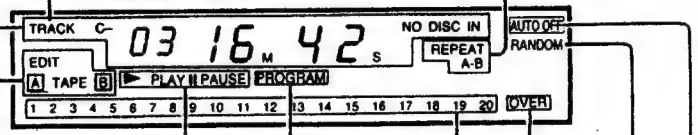
CD PLAYER DISPLAY

Tape type and remaining time display
During the editing operation, C-00 lights and the tape time is displayed.

Track number display
00 is displayed when the disc data cannot be read properly.
When a disc is loaded:
- The total number of tracks is displayed in the stop mode.
- The track number is displayed in the play and program modes.
- [[or]] is displayed when the innermost or outermost section of the disc is reached in the manual search mode.

Time display
0000 is displayed when the disc data cannot be read properly.
When a disc is loaded:
- The elapsed playing time is displayed in the stop mode.
- The elapsed time for the track currently playing is displayed in the play and pause modes.
- The elapsed time for the programmed tracks is displayed in the program mode.

The indicators switch as follows when the REPEAT button is pressed in the play mode:
First press: REPEAT (single track repeat) The repeated track number lights on the music calendar.
Second press: REPEAT (all tracks repeat) The track numbers of the tracks on the disc light.
Third press: REPEAT A-
Fourth press: REPEAT A-B
Fifth press: No display
- When track 21 or higher is repeated in 1-track repeat, the TRACK number flashes.



▶ PLAY lights when the disc is playing, and II PAUSE lights when in the pause mode.

This lights when there are 21 or more tracks on the disc.

PROGRAM lights during the programmed selection mode.

This lights when the RANDOM button is pressed.

AUTO OFF: Lights during the auto off mode.
OFF: Lights when the power is switched off.

During the editing operation, EDIT [A] TAPE lights up, the remaining time for side A of the tape is indicated on the time section of the display, the track numbers set for side A light on the calendar section of the display, while the track numbers set for side B flash. When the TAPE A/B button is pressed, [A] goes off, [B] lights, and the remaining time and track numbers set for side B are indicated in the same way.

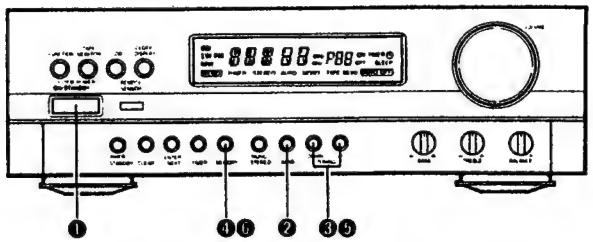
Music calendar display
This indicates the track numbers on the disc to a maximum of 20.
The track numbers go off after the corresponding tracks are played.
In the program mode, the track numbers of the programmed tracks are indicated to a maximum of 20.
All track numbers from 1 to 20 light when the disc data cannot be read properly.

- NO DISC lights on the display if no disc is loaded, or if the disc is loaded upside-down or is heavily scratched or dirty.

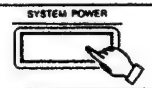
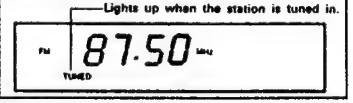
6 LISTENING TO RADIO BROADCASTS

(Check that connections are proper, referring to Page 5)

TUNING

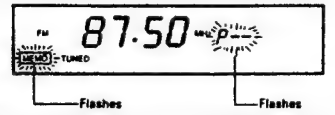
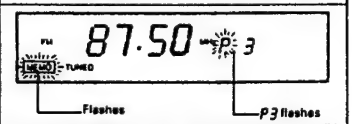
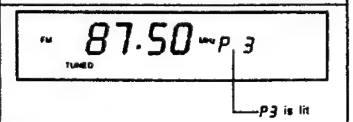


Example: Tuning to 87.50 MHz, FM

1	Set the VOLUME control to the minimum position, then press the SYSTEM POWER button.		
2	Select the FM band with the BAND button.		
3	Use the UP and DOWN buttons to set the frequency to 87.50 MHz.		

Presetting MW, LW and FM Stations

Example: Presetting the (currently tuned) FM 87.50 MHz to preset number 3

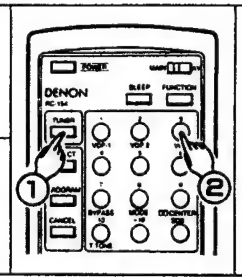
4	Press the MEMORY button. [MEMO] flashes for 10 seconds.		
5	Use the UP and DOWN buttons to call up the number to which you want to preset the station. Or, directly press the number buttons on the remote control unit. The preset number will flash.		
6	Press the MEMORY button while [MEMO] is flashing.		

Up to 30 MW, LW and FM stations can be preset at random using this procedure.

Auto Tuning
- When the TUNING buttons are pressed, the frequency changes in steps of 50 kHz for FM, 9 kHz for MW and 1 kHz for LW.
- If the TUNING UP or DOWN button is held in for more than 1 second, the frequency continues to change when the button is released. The next station is tuned in automatically and the tuning stops there. Note that tuning will not stop if the antenna input is weak and the [TUNED] indicator does not light. To stop the auto tuning, press the UP or DOWN button again.

Listening to Preset Stations

Example: Listening to the FM station preset at number 3

1	Press the TUNER button on the remote control unit.		
2	Press button "3" on the remote control unit.		

FM Stereo Reception

- When the MONO/STEREO button is pressed (which lights the AUTO and MONO indicators) and an FM stereo broadcast is received, the STEREO indicator lights and the station is received in stereo. If the MONO indicator is lit by pressing the MONO/STEREO button, the STEREO indicator goes off and the station is received in monaural.

Notes on Presetting

- When an FM station is preset, the auto or monaural mode is also set, so check the display before presetting the station.
- If a station is preset to a number at which another station has previously been preset, the previous station is cleared and the new station is preset.
- If the power cord is unplugged, the preset memory is not cleared immediately, but will be cleared if the cord is left unplugged over a long period. Should this happen, preset the stations again.

7 USING THE TIMER

Setting the Timer

- Be sure to set the current time.
- Regular timer: The power can be switched on and off once every day at the same time. (Wake-up music)
- Sleep timer: The power can be set to turn off in up to 60 minutes in steps of 10 minutes using the remote control unit. (Bedtime music)

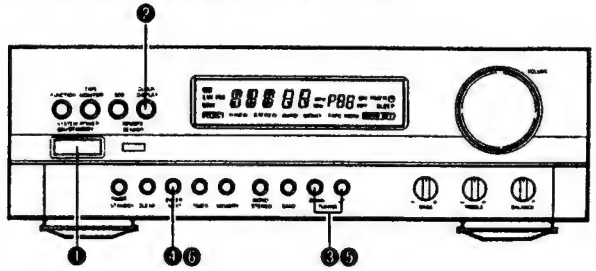
Be sure to preset stations before setting the timer.
Refer to "Presetting MW, LW and FM Stations" on Page 9.

- Turn the standby switch off when not using the timer.

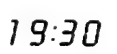
Power Failure

Should a power failure occur or if the power cord becomes unplugged from the power outlet, 0:00 or the time at which the power failed will flash on the time display. If this happens, reset the current time.
(Reset the current time and timer settings. If 0:00 was displayed, also reset the stations preset on the tuner.)
The standby mark starts flashing if there is a power failure or the power cord is unplugged while the standby mark is lit. If this happens, reset the time and the timer. (If the display reads 0:00, also reset the tuner's preset channels.)
To make the standby mark stop flashing, press the TIMER button, then press the TIMER or CLEAR button while "FUNC" is displayed.

Setting the Current Time (A 24-hour clock display is used.)

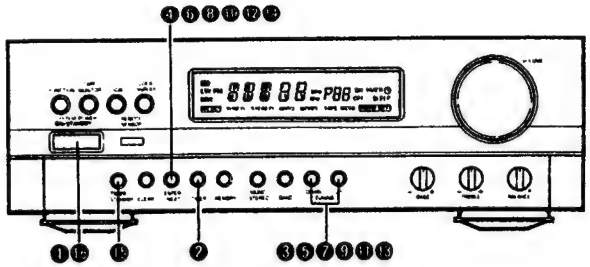


Example: Setting to 19:30 (7:30 p.m.)

1	Press the SYSTEM POWER button.		
2	Hold in the CLOCK/DISPLAY button for 3 seconds or longer.		 The hour's place flashes. (All places flash if the time has already been set.)
3	Set the hours with the UP and DOWN buttons.		 The set places flash.
4	Press the ENTER/NEXT button.		 The minutes' places flash.
5	Set the minutes with the UP and DOWN buttons.		 The set places flash.
6	Press the ENTER/NEXT button at the sound of a time signal. The time display lights steadily and the clock starts keeping the time.		 The display lights steadily and the clock starts to count from 0 seconds.

Setting the Timer

(Preset the MW, LW and FM stations in advance)



Example: Setting the timer to turn on at 12:35 and off at 12:56.
90.00 MHz FM is being received on preset number "1".
87.50 MHz FM is set to preset number "3".

1	Press the SYSTEM POWER button.	SYSTEM POWER / TIMER	FUNC
2	Press the TIMER button.		
3	Press the UP and DOWN buttons to display "TUNER".	DOWN / UP TUNING	TUNER
4	Press the ENTER/NEXT button.	ENTER /NEXT	87.50 P 3 (Flashes)
5	Press the UP and DOWN buttons to set the preset number.	DOWN / UP TUNING	
6	Press the ENTER/NEXT button.	ENTER /NEXT	0:00 P 3 (Lights up.)
7	Use the UP and DOWN buttons to set the hour at which the timer is to switch on.	DOWN / UP TUNING	12:00 P 3 (Flashes)
8	Press the ENTER/NEXT button.	ENTER /NEXT	12:00 P 3
9	Use the UP and DOWN buttons to set the minutes at which the timer is to switch on.	DOWN / UP TUNING	12:35 P 3
10	Press the ENTER/NEXT button.	ENTER /NEXT	0:00 P 3 (Flashes) (Lights up.)
11	Use the UP and DOWN buttons to set the hour at which the timer is to switch off.	DOWN / UP TUNING	12:00 P 3 (Flashes)
12	Press the ENTER/NEXT button.	ENTER /NEXT	12:00 P 3
13	Use the UP and DOWN buttons to set the minutes at which the timer is to switch off.	DOWN / UP TUNING	12:56 P 3
14	Press the ENTER/NEXT button.	ENTER /NEXT	90.00 P 1
15	Press the TIMER STANDBY button.	TIMER STAND BY	90.00 P 1 (Lights up. (See NOTE))
16	Press the SYSTEM POWER button.	SYSTEM POWER	10:15 (The illumination goes off and the current time is displayed.) (TIMER ◷ is displayed.)

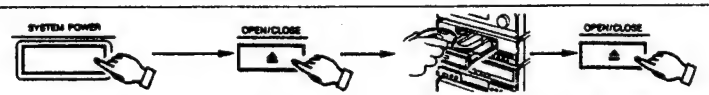
- When the TIMER STANDBY button is pressed and the "◷" mark is lit, the timer will function at the same times each day.
- To switch off the timer, press the TIMER STANDBY button and turn off the "◷" mark.

NOTE:

The timer standby mark "◷" will not light unless the current timer has been set. Should this be the case, set the current time, then press the TIMER STANDBY button.

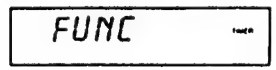
Ways to Use the Timer

Example 1: Waking up to the music of a compact disc.

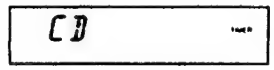
1. 

Press the tuner-preamplifier's SYSTEM POWER button to switch on the power. → Press the CD player's OPEN/CLOSE button to open the tray. → Set the compact disc in the tray. → Press the OPEN/CLOSE button again to close the tray.

2. Press the tuner-preamplifier's TIMER button.

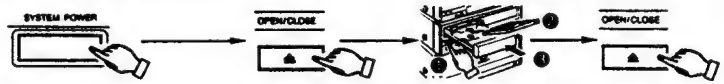



3. Press the UP and DOWN buttons of the tuner-preamplifier to display "CD".

4. Follow steps 6 to 16 under "Setting the Timer" on Page 11.

Example 2: Waking up to the music of a cassette tape.

1. 

Press the tuner-preamplifier's SYSTEM POWER button to switch on the power. → Press the cassette deck's OPEN/CLOSE button to open the tray. → Load the cassette tape. → Press the OPEN/CLOSE button again to close the tray.

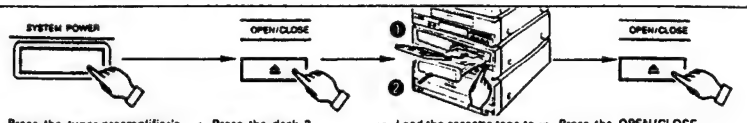
2. Press the tuner-preamplifier's TIMER button.


3. Press the UP and DOWN buttons of the tuner-preamplifier to display "TAPE".


4. Follow steps 6 to 16 under "Setting the Timer" on Page 11.

- The tape will be played back in the direction indicated by the tape direction indicator in the tape deck on the side of the tape counter display.

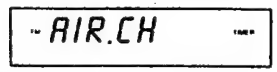
Example 3: Unattended recording of radio broadcasts ("air checks")

1. 

Press the tuner-preamplifier's SYSTEM POWER button to switch on the power. → Press the deck 2 OPEN/CLOSE button to open the tray. → Load the cassette tape to which you will record. → Press the OPEN/CLOSE button again to close the tray.

2. Press the tuner-preamplifier's TIMER button.


3. Press the UP and DOWN buttons of the tuner-preamplifier to display AIR.CH.

4. Follow steps 4 to 16 under "Setting the Timer" on Page 11.

- Timer recording starts in the direction indicated by the tape direction indicator of deck 2.
- Check that the tape direction and REV MODE switch settings are as desired.
- The section of leader tape at the beginning of the tape cannot be recorded. To avoid missing the beginning of the recording, set the starting time to about 1 minute before the program is scheduled to start.

Checking the Timer Settings

To check the timer settings, switch on the power of the tuner-preamplifier, press the TIMER button, then press the ENTER/NEXT button. The timer start mode, reception band, preset number, on time, and off time are displayed in order each time the ENTER/NEXT button is pressed. One more press returns the display to the reception frequency.
When the on time and off time have not been set, 0000 flashes and there is no transition to the next display.

Changing the Timer Settings

When the timer setting operation is repeated, the previous settings are deleted and the new settings are set.

Deleting the Timer Settings

The timer settings can be cleared by pressing the TIMER button and then while FUNC is being displayed, pressing the TIMER button again or pressing the CLEAR button.

Note about the Set Timer

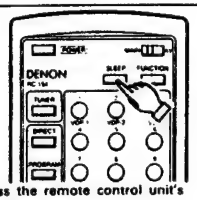
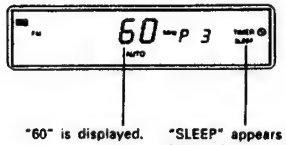
If the set time of the timer is reached while the power is on, the timer settings will take over and there will be a switch to the function that has been set on the timer.

Cancelling the Timer

Press the TIMER STANDBY button and the " ⏲ " mark will go off.

Setting the Sleep Timer

(Use the remote control unit for these operations.)
Example: Setting the power to switch off in 50 minutes.

	Currently receiving 87.50 MHz, FM.	87.50	
1	 Press the remote control unit's SLEEP button.	 "60" is displayed. "SLEEP" appears and flashes for 5 seconds.	
2	Press the SLEEP button again while "SLEEP" is flashing.	"50" is displayed, and the frequency display (87.50) reappears after 5 seconds.	The power is switched off after 50 minutes.

- If the sleep timer and regular timer settings overlap, the sleep timer is given priority.
- Do not press the TIMER STANDBY button after the power has been switched on with the timer. If this is done, the timer will not function properly.
- If the same time is set for the on time and off time, the power will not be switched on even when the "STANDBY" indicator is lit.
- If the timer is set for an AM or FM station and the on time of the timer is reached while listening to another station, the tuner switches to the station which was set with the timer.
- If the display is not normal, unplug the power cord, then holding in the MEMORY button and the BAND button, plug the power plug into the power outlet. This will reset the tuner to the initial settings and provide a proper display. If this is done, reset the preset stations, current time, and timer settings.

Cancelling the Sleep Timer

- To cancel the timer while it is operating in the sleep mode, press the SLEEP button, and while "SLEEP" is flashing, press the CLEAR button on the tuner-preamplifier.
- Press the SLEEP button and continue to press it until the power is switched off. When the power is switched off the sleep timer will be cancelled.

8 CASSETTE DECK

Before Recording and Playback

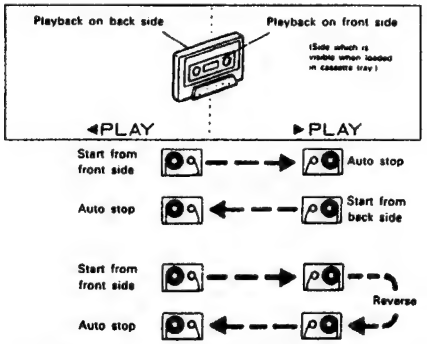
Auto Reverse

This deck is equipped with an auto reverse mechanism, so cassette tapes can be played and recorded on both sides or played continuously without having to turn them over.

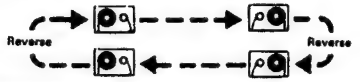
■ **Direction of tape travel**
This deck has two play buttons, one for the forward direction (front side) and another for the reverse direction (back side). The side being played can be changed during playback by pressing the opposite play button.

■ **Reverse mode**
Set the reverse mode switch (REV MODE) as follows:

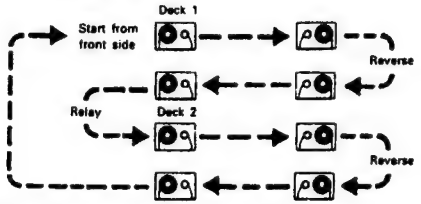
- **Single-side recording/playback mode (⇄)**
  In this position, only the front side or the back side of the cassette tape is played or recorded. (The tape stops automatically when the end of that side is reached.)
- **Two-side recording/playback mode (⊃)**
  In this position, when the end of the front side is reached, recording or playback automatically switches to the back side and continues from there. (The tape stops automatically when the end of the back side is reached.)
- **Continuous playback mode (⊂⊃)**
  When tape is loaded in only one of the decks, playback continues until the STOP button is pressed.
- **Relay playback mode (⊂⊃)**
  When tapes are loaded in both decks, playback continues from deck 1 onto deck 2, and then back again, as shown in the diagram at the right.



- If you start playing or recording from the back side, the tape will stop automatically at the end of the back side.

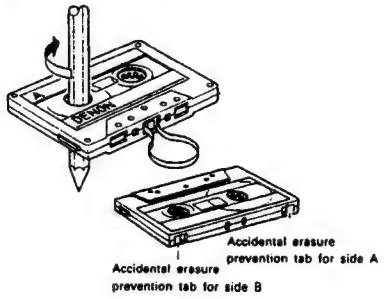


- The reverse recording/playback mode (⊃) is set automatically during recording.



Cassette Tapes

■ **Handling Precautions**
- C-120 cassette tapes
  Avoid using 120-minute cassette tapes, since they have extremely thin tape which tends to become wound onto the capstans or pinch rollers.
- Tape slack
  If the tape is slack, it may become wound onto mechanism parts or otherwise damaged. Take up the slack with a pencil before loading the cassette.

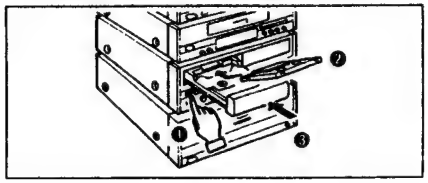


■ **Storage Precautions**
- Avoid storing in the following places:
  - Hot, humid places
  - Dusty places
  - Places exposed to direct sunlight
  - Near magnetic fields (TVs, speakers, etc.)
- Store the cassette tape in a case equipped with stoppers to keep the tape from coming slack.

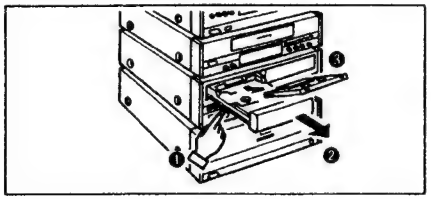
■ **Protecting Cassette Tapes From Being Erased Accidentally**
- Cassette tapes are equipped with accidental erasure prevention tabs. To protect recorded tapes from being erased accidentally, use a screwdriver, etc., and break these tabs off.
- To record on a cassette tape whose accidental erasure prevention tabs have been broken off, place a pieced of cellophane tape over the hole.

Loading and Unloading Cassette Tapes (Common for Deck 1 and Deck 2)

- **Loading**
  ① Press the OPEN/CLOSE button (⏏) to open the cassette tray.
  ② Set the tape in the cassette tray with the open side (on which the tape is exposed) facing away from you.
  ③ Press the OPEN/CLOSE button again to close the tray.



- **Unloading**
  ① Press the STOP button (■).
  ② Press the OPEN/CLOSE button (⏏) to open the cassette tray.
  ③ Remove the cassette tape.



Check the following before recording or playing cassette tapes:
1. Is the head dirty?...
   The sound quality will be poor if the head is dirty. Refer to Page 21.
2. Are the accidental erasure prevention tabs broken off?...
   Recording is not possible if these tabs are broken off. Refer to Page 13.

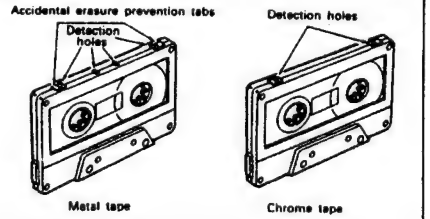
NOTE:
- Load the cassette tape on an angle with the open side facing away from you. Loading it in the opposite direction can cause damage.
- Do not press the OPEN/CLOSE button during playback or recording. Always press the STOP button before pressing the OPEN/CLOSE button.

Using the Tape Counter (Linear Tape Counter)
- This counter displays the elapsed running time of the tape in minutes and seconds.
- The counter can be reset to 0:00 by pressing the COUNTER RESET button. Or, the counter will also be reset when the tape is loaded or unloaded.
- Making a memo of the contents of a recording and the range of the counter numbers while you are recording or playing back a tape will be convenient when you search for a portion of the tape to which you would like to listen.

NOTE:
- This deck's linear tape counter has been set for the following cassette tape lengths: C46, C50, C54, C60, C74, C90, C100, C120, C46L, C50L, and C54L. (L indicates large-hubbed cassettes.) Using a tape that lies outside of this range, or a tape with a different length than the displayed lengths, will result in error. When using a tape that is not included in the TAPE SIZE selection, select the tape size closest to the length of the tape to be used. (This will reduce the error.)
- The linear tape counter is not accurate like a clock. The thickness of the tape will differ depending on the type of tape used (tape position and time), and so there will be some error introduced. Error also arises from the difference between tapes with smaller and larger hubs, and shows up in the remaining tape display (END mark).

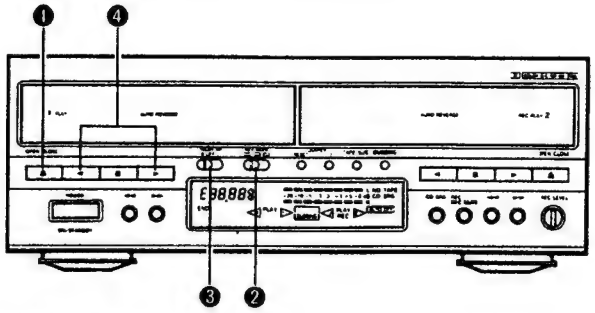
Auto Tape Selector Mechanism

This deck is equipped with an auto tape selector mechanism which uses the detection holes in the cassette halves to automatically set the recording bias and equalization best suited for that type of tape.
- Do not use ferrichrome tapes.
- Use metal tapes equipped with detection holes. (Use of the old type of metal tape without detection holes will result in the sound having an emphasized treble region.)

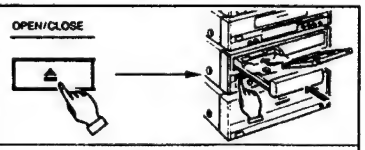
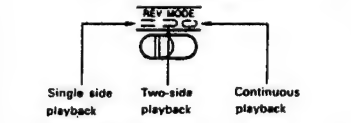


9 PLAYING CASSETTE TAPES

(Single Side Playback, Two-Side Playback, and Continuous Playback)



- Functions common for deck 1 and deck 2.
- When operating from the remote control unit, the operation switches between deck 1 and deck 2 each time the DECK 1/2 button is pressed. The counter indicator (1 or 2) lights for the selected deck.

1	Press the OPEN/CLOSE button, and load a recorded tape into the tray. Refer to Page 14.		Loading the tape  The tape can be loaded easily by inserting it at an angle. Removing the tape  The tape can be removed easily by lifting it out toward yourself at an angle.
2	Set the REV MODE switch. Refer to Page 13.		
3	Set the DOLBY NR switch. Refer to Page 6 ❷.	 Set to B or C (as indicated on the tape) for tapes recorded with Dolby NR.	
4	Press the play button (▶ or ◀).	 Playback starts in the direction of the button pressed.	Press the stop button ■ to stop the playback.

PLAYING CASSETTE TAPES

Using the MS (Music Search) Function and the Music Search Display

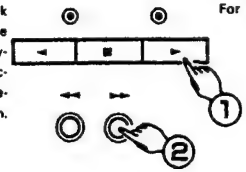
Using the MS (Music Search) Function

■ **Use this function to move to the beginning of the following section or return to the beginning of the current selection.**

① Press ▶ or ◀.

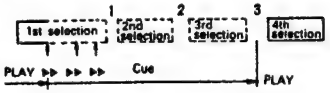
② Press ▶▶ or ◀◀.

- In the rewind direction, playback starts from the beginning of the selection which is currently playing, and in the fast-forward direction, playback starts from the beginning of the following selection.



The tape skips by a number of selections equal to the number of times the ▶▶ or ◀◀ button is pressed.

For example:

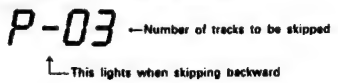


- For the normal fast-forward or rewind operations, press the stop button ■ before pressing the ▶▶ or ◀◀ button.

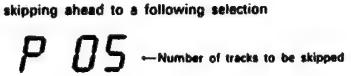
Display During the Music Search Operation

During the music search operation, the number of selections being skipped is indicated on the tape counter, and this number decreases each time a blank section is detected (for example, 3 → 2 → 1).

- When skipping back to a previous selection



- When skipping ahead to a following selection



Adjustment of the Recording Input Level Control

Too high a recording level will result in a recording which has a high degree of distortion, whereas too low a recording level will result in a high degree of noise. Adjustment of the recording input level is of the utmost importance in making a well-balanced recording.

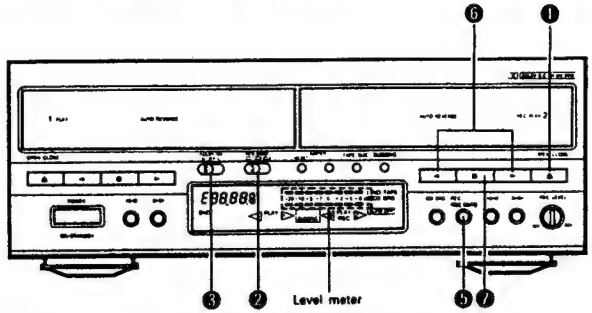
Guide to Recording Input Levels

Type I (normal) tapes	0 dB
Type II (CrO_2) tapes	+3 dB
Type IV (metal) tapes	+3 dB

NOTE:

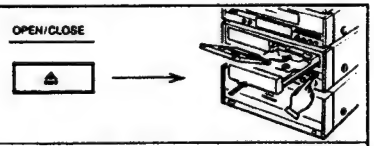
The optimum recording level will actually differ depending on the source and the type of tape, and so a trial recording should be made.

10 RECORDING CASSETTE TAPES

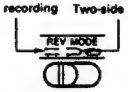


- The positions of the VOLUME and tone controls do not affect the sound being recorded.

1 Press the OPEN/CLOSE button ⏏ for deck 2 and load the tape to which you will record. Refer to Page 14.



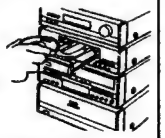
2 Set the REV MODE switch to ⇄ or ⊃. Refer to Page 13.



3 Set the DOLBY NR switch. Refer to Page 6 ❼.

Set to B or C to record with Dolby Noise Reduction.

4

Recording from the radio	Recording from a VDP or DAT	Recording from a CD player
 Press the BAND selector button. ↓ Select the station you wish to record. (Refer to Page 9.)	 Press the tuner-preamplifier's FUNCTION button and select PHONO or DAT. ↓ Start playback on the VDP or DAT.	 Set the disc in the CD player. (Refer to Page 16.)

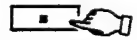
5 Press the REC/REC MUTE button.

The REC (recording) indicator lights.

(5)  Press the CD SRS button. The CD SRS indicator lights and recording starts.

6 Press the ▶ or ◀ button. (Recording starts)

7 To stop recording, press the stop button.



Adjust the recording level.

Adjust the lighting condition of the level meter with the recording level control. Refer to the section on Page 15.

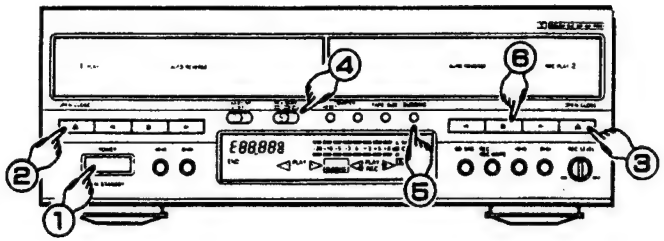
* When the CD SRS button is pressed, a 7-second blank portion is automatically created before recording starts.

RECORDING CASSETTE TAPES

• Making a Synchro Dubbing (Copy)

Synchro dubbing (tape copying) can be made at regular speed from deck 1 to deck 2.

☞ Press the SYSTEM POWER button of the tuner-preamplifier.



① Press the SYSTEM POWER button of the tuner-preamplifier or press the POWER ON/STANDBY button of the deck.
② Press the OPEN/CLOSE (⏏) button and load the tape to be played back in deck 1.
③ Press the OPEN/CLOSE (⏏) button and load the tape to be recorded back in deck 2.
④ Set the reverse mode with the REV MODE switch.
(REV MODE ⇄ : ⊃ : ↻)
⑤ Press the DUBBING (synchro dubbing) button. Note that if the POWER ON/STANDBY button of the deck is pressed to switch on the power, the power of the tuner-preamplifier will automatically be switched on when the DUBBING button is pressed. You will be able to hear the audio normally.
⑥ To stop the dubbing, press the stop button (■) or press the DUBBING button.
The tape will automatically stop when it reaches the end and the synchro dubbing mode will be cancelled.

- Recording level during synchro dubbing
  During synchro dubbing, the recording is made at the same level as the playback tape of deck 1, regardless of the position of the recording level control. Note that when the recording tape and the playback tape are of different types, the recording level might be different and so synchro dubbing should be done with the same type of tape if possible.

- Dolby NR mode during synchro dubbing
  The Dolby NR system is automatically disengaged from the panel switch during synchro dubbing (even though the display does not change) and the tape is recorded with the Dolby NR mode of the playback tape.

- You can listen to the sound of another source while synchro dubbing.
  Changing the source with the FUNCTION button or the CD play button will not interrupt the synchro dubbing.

- When synchro dubbing, both decks begin running in the forward direction (from the A side).

- The synchro DUBBING button is effective in starting the operation only when both tapes are in the stopped condition.

- The following buttons do not function during the synchro dubbing operation: forward play ▶, reverse play ◀, fast forward ▶▶, rewind ◀◀, and REC/REC MUTE.

- To ensure complete reproduction, use the same length of recording tape as the playback tape, and rewind both tapes to the beginning of side A before starting the dubbing operation.

- By setting the REV MODE switch to the ⊃ or ↻ position, when the playback tape of deck 1 reverses at the end of the tape on side A, the deck 2 tape will reverse at the same time and dubbing can continue on side B.

11 PLAYING CDs

Compact Discs

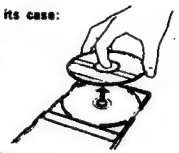
- Press the OPEN/CLOSE button (⏏) once to open the disc try, once again to close it.
- The disc tray can also be closed by pressing the play (▶) button.
  When this is done, playback automatically starts from the first track on the disc (or if the tracks are programmed, the first programmed track).
- Load the disc with the label side facing up, being careful not to touch the disc surface.
- Load the disc with the disc tray open all the way.
- Set the disc securely in the tray guide at the center of the disc tray.
  To play an 8 cm disc, place the disc in the sunken part at the center of the disc tray.
- When the disc tray is closed, the disc turns automatically for several seconds, and the number of tracks and total playing time appear on the display.

COMPACT disc DIGITAL AUDIO — Only discs with this mark can be played.

- For CDVs, only the audio part is played (the video part is not played).

Disc	Remarks
CD	
CDV	Only the audio part is played.
CD single (8 cm)	

■ When removing the disc from its case:
As shown in the diagram, grasp the disc along the edges, gently press down on the hole in the middle with a finger, and lift the disc. It should come out easily.

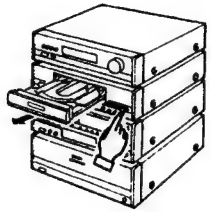


■ When setting the disc in the disc tray:
Always set the disc with the label side facing up. (Compact discs can only be played on one side). For 8 cm CDs, set the disc in the sunken part in the middle of the tray.

Handling the Disc Tray

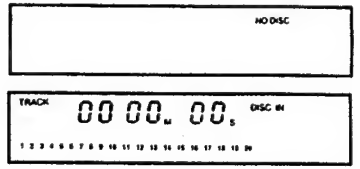
Do not switch off the power or push or pull the disc tray when it is moving, since this may damage it.
If the cord of a set of headphones, etc., gets caught in the disc tray when it is closed, press the OPEN/CLOSE button (⏏) again.

- Never set objects other than CDs in the disc tray, as this can cause damage.

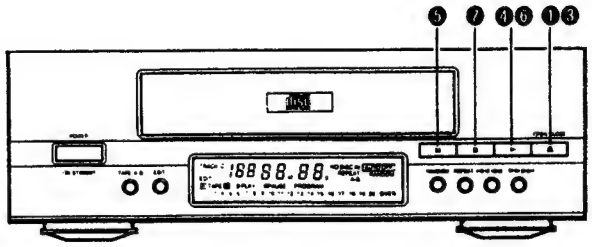


NOTE:

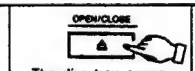
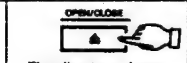
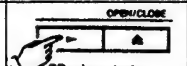
"NO DISC" is displayed on the display window when no disc is loaded, when the disc is loaded upside-down, or when the disc is not properly loaded. Also, " 00. 00. " may appear during playback of a CD if the disc is scratched or dirty. If this happens, the set will not operate when a normal operating button (other than the OPEN/CLOSE button) is pressed, so press the OPEN/CLOSE (⏏) button, remove the disc, clean it as necessary, then press the PLAY (▶) button again.



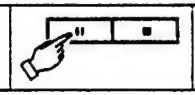
Regular Play



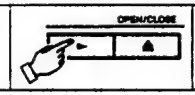
Example: Playing a CD with 15 tracks and a total playing time of 62 minutes 03 seconds, starting from track 1

1	Press the OPEN/CLOSE button.	 The disc tray opens.	
2	Set the CD in the disc tray. Refer to Page 16.		The display appears several seconds after the disc tray closes.
3	Press the OPEN/CLOSE button.	 The disc tray closes.	
4	Press the play button.	 CD play starts.	

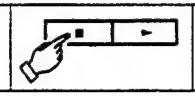
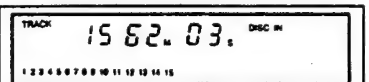
To stop play temporarily:

5	Press the pause button.		"▶ PLAY" goes off and "II PAUSE" appears. CD play is paused at the point the button is pressed.

To resume CD play:

6	Press the play button.		"II PAUSE" goes off and "▶ PLAY" appears. CD play resumes from the point the pause button was pressed.

To stop CD play:

7	Press the stop button.		

NOTE:

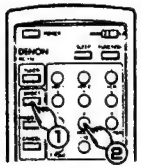
- 00 is displayed on the track number section of the display for several seconds after the disc is set, while the data on the number of tracks, playing time, etc., is being read from the disc. After this, the number of tracks and total playing time appear.

Various CD Play Functions

(Insert the disc before performing the following operations.)

❶ Playing Certain Tracks — DIRECT SELECTION

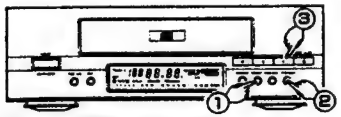
Example: Playing the 8th track
Perform this operation from the remote control unit.



① Press the DIRECT button.
② Press track button "8". "TRACK 8" appears on the display, and the 8th track begins playing.
- When the end of the track is reached, play continues on to the next track.

- For track numbers of 11 and higher, for example 15, press [+10] and [5]. For track numbers of 20 and higher, for example 23, press [+10], [+10], and [3]. For track number 20, press [+10] and [10].

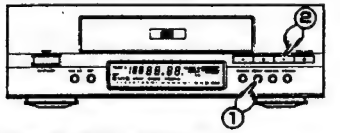
❷ Playing 1 Track Repeatedly — 1 TRACK REPEAT



① Press the REPEAT button once.
② Press the ⏮ ◀◀ or ▶▶ ⏭ button, and select the desired track.
③ Press the play button (▶) to start play.

- When the specified track finishes playing, the pickup returns to the beginning of that track and play is repeated.
- If the REPEAT button is pressed once during play, the track will be played repeatedly.
- If the REPEAT button is pressed once during programmed play, the track will be played repeatedly.
- If the REPEAT button is pressed once while the disc is stopped, the TRACK numbers indicator flashes and the 1 track repeat play mode is set.

❸ Playing All Tracks Repeatedly — ALL TRACKS REPEAT

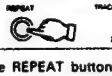
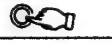


① Press the REPEAT button twice.
② Press the play button (▶) to start play.

- When the last track finishes playing, the pickup returns to the first track of the disc and play is repeated.
- If the REPEAT button is pressed twice during play, the disc will be played repeatedly.
- If the REPEAT button is pressed twice during programmed play, the program will be played repeatedly.
- If the REPEAT button is pressed twice while the disc is stopped, the TRACK numbers indicator lights and the all tracks repeat play mode is set.

❹ Playing a Specific Section Repeatedly — SECTION REPEAT

Example: The CD has a total of 15 tracks

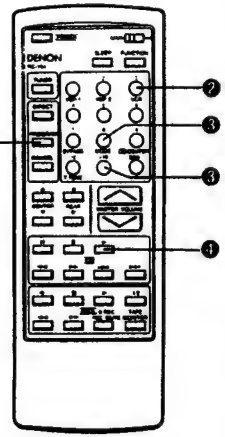
1st time	(1) Press the REPEAT button during CD play. 	Only that track is played repeatedly, and that track number lights on the music calendar. * With a 1-track repeat of track 21 or higher, "TRACK No." flashes.
1st time	(2) Press the REPEAT button before CD play.	The total number of tracks flashes, and then ① the first track is repeated by pressing the play button ② when play is started by direct selection from the remote control or with the ⏭ or ⏮ button, only those selected tracks are played repeatedly.
2nd time	Press the REPEAT button before CD play or during CD play. 	The track numbers contained on the disc light up on the music calendar, and all tracks are played repeatedly.
3rd time	Press the REPEAT button during CD play. 	"REPEAT A-" lights up. If nothing else is done, all tracks are played repeatedly.
4th time	Press the REPEAT button during CD play. 	"REPEAT A-B" lights up. The A-B section is played repeatedly.
	Pressing the REPEAT button once again returns the player to regular CD play.	

❺ Playing Certain Tracks in any Desired Order ..... PROGRAMMED SELECTION

(Perform this operation from the remote control unit.)

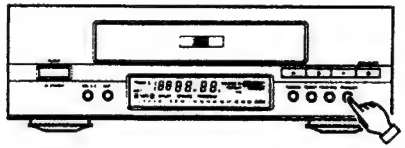
Example: Programming track 3 to play first, track 18 to play second, on a CD with 18 tracks and a total playing time of 62 minutes, 3 seconds

Setting and Playing the Program (Set the Slide Switch to the "MAIN" Side.)

1	Press the PROGRAM button.		
2	Set track 3 to play first.		 After 2 seconds The display when track 3 is set to play first Time of first track: 8 minutes, 00 seconds
3	Set track 18 to play second.		 After 2 seconds The display when track 18 is set to play second Total time of tracks 1 and 2: 16 minutes, 05 seconds
4	Press the play button.		The tracks start playing in the programmed order.

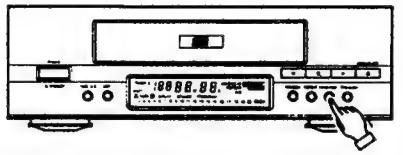
- The numbers of the programmed tracks go off once the tracks are played.
- The time display will read "— — M — — S" if a track number of 31 or higher is set in the program.
- When a program is set during CD play after a direct selection, the track currently playing is set as the first track in the program.
- Up to 20 tracks of your choice from among track numbers 1 through 99 can be programmed with this CD player.
- If you attempt to set a track number that is greater than the number of tracks on the disc, that track number will not be displayed when the buttons are pressed.
- Programming is also possible when the disc tray is open. In this case, track numbers greater than the number of tracks on the disc can be programmed, but these are ignored when the disc is played.
- There is a silent interval of 4 seconds between tracks. This is has been designed to create a blank section of 4 seconds between selections when recording programmed tracks onto tape.
- The entire program is cleared when the disc tray is opened or closed (by pressing the ⏏ button).
- If you make a mistake when programming tracks, press the CANCEL button and program again. (Each press of the CANCEL button cancels the last track.)
- An A-B section repeat is not possible during programmed play.
- Other operations possible during programmed play:
  The quick search, pause, skip monitor, and other operations can be used during programmed play. To move to the beginning of the previous track with the quick search operation, press ⏮ ◀◀ once, then once again while the time display reads '00M 00S. To move to the beginning of the following track, press ▶▶ ⏭ once, regardless of the time display.
- Perform programming and canceling in the stop mode.

❻ Moving to the Next Track During CD Play ..... QUICK SEARCH



① Press the auto search forward button (▶▶ ⏭).
- Each press of the auto search forward button (▶▶ ⏭) moves the pickup to the beginning of following tracks.

❼ Moving Back to the Beginning of the Current Track During CD Play ..... QUICK SEARCH

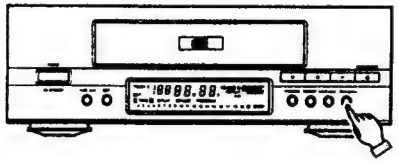


① Press the auto search backward button (⏮ ◀◀).
- Each press of the auto search backward button (⏮ ◀◀) during the search operation moves the pickup to the beginning of previous tracks.

❽ Searching for Tracks While Listening to the Sound ..... SKIP MONITOR

- Use this to skip through a disc listening to the sound at high speed.
  This function is convenient when searching for a certain section within a long track.
- Use the skip monitor function to find the desired position, then release the search button to start regular playback from there.

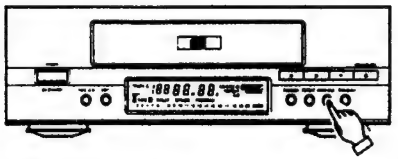
[1] Forward skip monitor



- The track number and elapsed playing time of the track being skipped through are indicated on the display.
- If the end of the last track on the disc is reached while pressing the search button, (⟩⟩) appears on the display and the skip monitor operation stops. To resume CD play, press the search backward button (⏮ ◀◀) until (⟩⟩) switches to the track number, then perform a different operation.

① During CD play, press and hold in the forward search button (▶▶ ⏭) to skip forward while listening to the sound.

[2] Backward skip monitor



- The track number and elapsed playing time of the track being skipped through are indicated on the display.
- If the beginning of the first track on the disc is reached while pressing the search button, (⟨⟨) appears on the display and the skip monitor operation stops. To resume CD play, press the search forward button (▶▶ ⏭) until (⟨⟨) switches to the track number, then perform a different operation.

① During CD play, press and hold in the backward search button (⏮ ◀◀) to skip backward while listening to the sound.

If the forward or backward skip button is pressed during programmed CD play and released at a track which has not been programmed, the next programmed track will be played once that track has been played to the end.

❺ Playing Tracks in Random Order ..... RANDOM SEARCH

- The function plays each track on the disc once in random order.

- A press of the RANDOM button lights the RANDOM indicator to show that the random mode has been set. Random search will begin when the play button is pressed and the disc will start playing automatically.
- Simply pressing the RANDOM button during CD play will start the random search and start random play.
- Pressing the RANDOM button when a program has been set will play the programmed tracks in random order.
- Pressing the RANDOM button when repeat play has been set will play the tracks through randomly one time, and each time following this there will be a random search with a different pattern.
- An A-B section repeat is not possible during random play.
- During the search operation, the track numbers of the disc from track 1 to the last track will be repeatedly displayed at high speed in the TRACK NO. section, and the following tracks to be played will not be known from the end of the search to the time CD play begins.
- Pressing the RANDOM button when 1-track repeat has been set will automatically change the setting to all tracks repeat and these tracks will be played randomly.

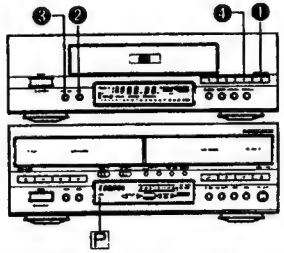
NOTE:

Random play is not possible during the edit operation.

Edited Recording onto Sides A and B of a Tape (EDIT)

Editing is possible with CDs containing up to 20 tracks.

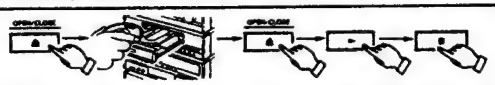
Before starting the edited recording operation, load the cassette tape to which you will record into deck 2 with side A facing up. The leader tape is automatically taken up before recording starts. (Set the REV MODE switch to the ⇄ position.)



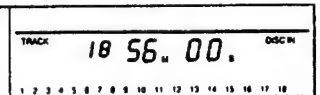
❶ Automatic Edited Recording ..... RECORDING IN THE SAME ORDER AS ON THE DISC

Example: Recording a disc with 18 tracks and a total playing time of 56 minutes onto a C-60 cassette tape

1



Press the OPEN/CLOSE button. → Set the disc. → Press the OPEN/CLOSE button. → Press the play button and set the function to CD. → Press the stop button.



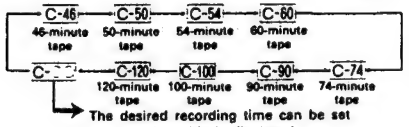
NOTE:

- With edited recording, side B of the tape will be recorded automatically even when the REV MODE switch of the deck is set to the ⇄ position.
- During edited recording, only the following buttons will function: the stop button of the CD or the OPEN/CLOSE button, and the stop button of the deck.
- When using a recorded tape for edited recording, the tape should be erased before use, since when the tape is longer than the set time, an unrecorded section of side B will remain after the tape stops.
  When a tape which has been recorded with this system is played back, there will be 4-second blank portions between tracks (for making it easy to reach the beginning of a track). This will differ from the actual silent portions between the tracks on the disc, and so there will be some error in the actual remaining time of the tape and the displayed time.

2

EDIT

Press the EDIT button to set the tape length.
Press the EDIT button four times when using a 60-minute (C 60) tape.
(The tape length is to total time of sides A and B.)
The display changes as follows each time the EDIT button is pressed.
(When the tape time has already been set, the display will change in order starting at that time each time the EDIT button is pressed.)

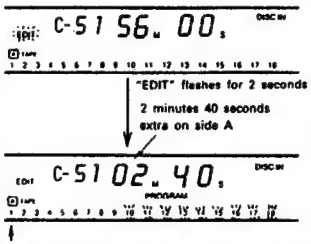


The desired recording time can be set when this is displayed.
(Method 1)

Example: For a 36-minute tape, use the ⏮◀◀ or ▶▶⏭ button to set 36.
To set the tape length using the remote control unit, use the number buttons. For example, in the case of a 30-minute tape, press +10 twice and press 10.

If you make a mistake, press the EDIT button to display C-00, then start over again.

Setting the desired recording time (Method 2)
Select a tape length close to the desired time, then make a fine adjustment using the ⏮◀◀ or ▶▶⏭ button.
For example, to set 51 minutes, select C-50, then press the ▶▶⏭ button once to set C-51.



Tracks for side A light up. Tracks for side B flash.
(Tracks 1 through 9 are recorded on side A.)
(Tracks 10 through 18 are recorded on side B.)

3

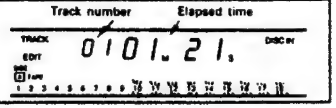
A/B button is pressed.
(Use this to check the extra time on side B.)

The display changes between sides A and B each time the TAPE

Tracks for side A flash. Tracks for side B light up.
1 minute 20 seconds extra on side B.

4

Press the play button.



- Note that in some cases, even if the tape is longer than the total playing time on the disc, it may not be possible to record all the tracks onto the tape, since they are divided onto sides A and B. In such cases, the OVER indicator flashes.

❷ Programmed Edited Recording ..... RECORDING CERTAIN TRACKS IN ANY DESIRED ORDER

① Follow the instructions under "PROGRAMMED SELECTION" on Page 18 to program the tracks.
② Perform steps 2 through 4 under the aforementioned "Automatic Edited Recording".

Programmed CD Play Using the Search Buttons (⏮◀◀ ▶▶⏭)

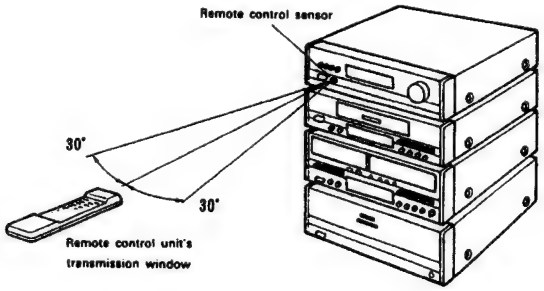
Pressing the PROGRAM button of the remote control unit will light up the "PROGRAM" indicator. When the disc is stopped, programming can be done with the search buttons (⏮◀◀ ▶▶⏭) on the CD player or with the search buttons (⏮◀◀ ▶▶⏭) on the remote control unit.

- Select the tracks with the search buttons, then press the PROGRAM button to program them.
- The search buttons (⏮◀◀ ▶▶⏭) can be used to change the track numbers continuously.
- After the track numbers have been selected with the search buttons, if the play button is pressed to start CD play before the PROGRAM button is pressed, the last track of the program set up to this point will be played.
  In this case, the tracks selected with the search buttons will not be programmed.

12 REMOTE CONTROL UNIT

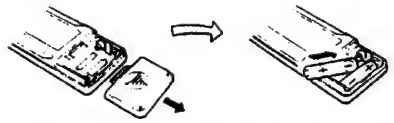
Cautions on Use

1. The D-250 is supplied with a remote control unit (RC-154) for system control.
2. Replace the batteries with new ones when the transmission distance possible with the remote control unit shortens.
3. For longer battery life, remove the batteries when not using the remote control unit for long periods.
4. When replacing batteries, use two new batteries. Never use an old battery with a new one.
5. Do not use two different types of batteries.
6. Do not heat batteries or take them apart.
7. Be careful that the remote control sensor is not exposed to direct sunlight or strong light from lighting fixtures.
8. The remote control sensor is located on the tuner preamplifier. Point the remote control unit at the sensor, then press the buttons for the desired operation.
9. Operate the remote control unit within the range illustrated in the diagram.



Inserting the Batteries

① Open the battery case lid on the back of the remote control unit.



② Insert the two batteries (R6P, AA) in the proper direction.

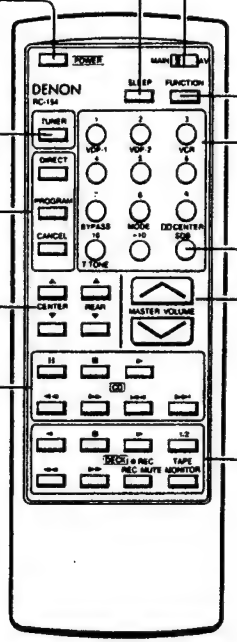
③ Set the battery case lid back in place.

▤ appears at the upper left corner of the tuner-preamplifier's display when a signal is received.

- The remote control unit can be used at a distance of about 7 meters from the remote control sensor, but this distance will be shorter if there are obstacles in the way or if the remote control is operated from an angle.

10. Do not press buttons on the remote control unit and on the main unit at the same time. Doing so will lead to a malfunction.
11. If ▤ appears on the tuner-preamplifier's display due to incident light even though the remote control unit has not been operated, it is best to move the set or place it in a different direction. Even if this happens, it will not cause a malfunction with remote control unit.
12. When adjusting the volume continuously with the remote control unit, the volume adjustment will stop if the remote control unit is moved away from the remote control sensor. Should this happen, press the button again to continue changing the volume.

Button Names and Functions



SLEEP
Press this to set the sleep timer.

POWER
Press this to switch on the power for the entire system or set the system to standby.

TUNER
Press this to listen to the preset stations.

CD Play

DIRECT button
Press for direct track selection of CD player.

PROGRAM button
Press for programmed selection of CD player.

CANCEL button
Press once during programming to cancel the last track programmed.

CENTER and REAR level
Use to adjust the volume of an optional AV amplifier. Press ▼ to lower the volume, ▲ to raise the volume.

Operating the CD Player

Pause button (II)
Press to temporarily stop CD play. Press the play button ▶ to resume play.

Stop button (■)
Press to stop CD play.

Play button (▶)
Press to start CD play.

Manual search backward button (◀◀)
Manual search forward button (▶▶)
Press these to quickly move backward or forward.

Backward skip monitor button (I◀◀)
Press during CD play to go back to the beginning of that track. Press the button again within 0.5 seconds to go back to the beginning of the previous track.

Forward skip monitor button (▶▶I)
Press during CD play to go forward to the beginning of the next track. Press the button again to go forward to the beginning of the track two tracks ahead.

MAIN/AV switch
Switch to the AV side when the system is used together with the optional AV amplifier. Usually, this switch is set to the MAIN side. When set to AV, the number buttons switch over to the functions indicated below them.

FUNCTION (input switching) button
Switches the function between TUNER, TAPE, CD, PHONO, and DAT.

Number buttons
After pressing TUNER, these buttons call up the preset stations.
When used with CD play, after pressing DIRECT or PROGRAM, these buttons specify the tracks to be played.

MASTER VOLUME
Adjusts the volume.
Press V to lower the volume, and Λ to raise it.

Operating the Cassette Decks

Deck 1/2 button
Press this to select the deck to be operated.

Stop button (■)
Press this to stop the tape deck.

Forward play button (▶)
Press this to play back or record in the forward direction.

Reverse play button (◀)
Press this to play back or record in the reverse direction.

● REC/REC MUTEE button
(recording/recording mute button)
To set the recording mode when in the stop mode, press this button, then press either the "▶" or the "◀" button. When pressed during the recording or recording pause mode, a blank section of approximately 5 seconds is created on the tape, after which the deck is set to the recording pause mode.

Rewind button (◀◀)
Press this to rewind the tape.

Fast-forward button (▶▶)
Press this to fast-forward the tape.

TAPE MONITOR button
Use this to monitor the sound of the tape. When used in combination with a 3-head deck, the recorded sound can be monitored (from the tape).

SDB (Super Dynamic Bass)
Press this button for more powerful bass sound. Press again to return to the original setting.

When the MAIN/AV switch is set to the AV side, number buttons 4, 5, 6, and +10 can be used for the following operations. Use these buttons when a DENON AV amplifier having these functions is used with this system.
4 button → VCR-2
5 button → DBS
6 button → TV
+10 button → 3CH LOGIC

13 AUTO ON/OFF FUNCTION

- When the CD or deck play button, or the OPEN/CLOSE button is pressed from the standby mode, the power is switched on automatically, and the play or open/close operation is performed. The "AUTO OFF" indicator lights at this time.
- When play ends in this mode and there are no operations for 10 minutes, the power is automatically switched off and the system enters the standby mode. If there is no disc or cassette in the system, the power will be switched off in about 1 minute.
- When the disc tray or the cassette tray is open, the tray will close in about 1 minute.
- When the tuner number buttons (preset numbers) are pressed, the power will be switched on in the same way and the system will enter the auto off mode. In this case, the "TUNED" indicator will go off and 10 minutes later the power will be switched off.

14 IMPORTANT INFORMATION

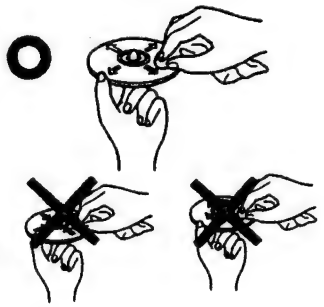
• Head Cleaning

After the cassette deck has been used for a while, powder from the tapes and dirt adhere to the head and lower the sound quality. Use a head cleaning cassette tape to clean.

NOTE:

Some of the cleaning sets on the market have a strong polishing effect which can damage the head.

• Disc Cleaning



Never use the following to clean discs:

- Solvents such as benzene or alcohol
- Cleaners containing abrasives
- Record sprays or cleaners
- Anti-static products

• Head Demagnetizing

The heads become magnetized after the deck has been used over a long period of time or if the heads are exposed to a magnetic field. This results in noise and reduced treble. In addition, there may be a reduction of the treble range of recorded tapes as well as noise produced on these tapes.

When the heads become magnetized, use one of the cassette tape head demagnetizers (erasers) available on the market to demagnetize the heads.

- For details, read the operating instructions of the demagnetizer.

Dust, fingerprints, or spittle on the disc can cause noise or skipping.

If the disc is dirty or if the player does not work properly, clean the disc as follows:

- Hold the disc as shown in the diagram, with the signal surface facing up (and the labelled side facing down).
- Using a soft cloth, wipe the disc gently from the inside straight towards the edges (as shown by the arrows).

- Do not wipe from the edges towards the center, or around the disc as you would wipe records.
- Do not use hard cloths or rub the disc forcefully, since the signal surface is susceptible to scratches.

15 SPECIFICATIONS

- **Tuner-preamplifier (UTP-250)**

Reception Frequency Range:	FM: 87.50 MHz to 108.00 MHz AM: 522 kHz to 1611 kHz (MW), 153 kHz to 279 kHz (LW)
Receiving Sensitivity:	FM: 1.5 µV, 75 ohms (SN ratio 30 dB) AM: 20 µV (SN ratio 20 dB, MW), 35 µV (SN ratio 20 dB, LW)
FM Stereo Separation:	40 dB (1 kHz)
Bass Adjustment:	100 Hz ±8 dB
Treble Adjustment:	10 kHz ±8 dB
Super Dynamic Bass:	80 Hz +8 dB
Jacks:	PREOUT: Output jacks PHONO: Input jacks DAT: Input jacks, recording output jacks Processor: Processor input/output jacks
Dimensions (max.):	270 (W) × 86 (H) × 330 (D) mm (10-5/8" × 3-25/64" × 13")
Weight:	3.2 kg (7 lbs 10 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	18 W

- **Amplifier (UPO-250)**

Rated Output Power:	50 W + 50 W (20 Hz to 20 kHz, 8 ohm)
Jacks:	6.3 mm headphone jack
Dimensions (max.):	270 (W) × 96 (H) × 330 (D) mm (10-5/8" × 3-25/32" × 13)
Weight:	4.1 kg (9 lbs 1 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	140 W

- **CD Player (UCD-250)**

Wow and Flutter:	Below measurable limits (±0.001% W. Peak)
Sampling Frequency:	44.1 kHz
Light Source:	Semiconductor
Dimensions (max.):	270 (W) × 86 (H) × 313 (D) mm (10-5/8" × 3-25/64" × 12-21/64")
Weight:	3.1 kg (6 lbs 13 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	15 W

- **Cassette Deck (UDRW-250)**

Type:	Horizontal 4-track, 2-channel auto reverse stereo cassette deck
Heads:	1 hard permalloy recording/playback head, 1 hard permalloy playback head, and 1 double-gap ferrite erase head
Tape Speed:	4.75 cm/s
Noise Reduction Circuits:	Dolby B and C NR
Usable Tapes:	Normal, chrome, and metel tapes
Dimensions (max.):	270 (W) × 96 (H) × 318 (D) mm (10-5/8" × 3-25/32" × 12-33/64")
Weight:	4.4 kg (9 lbs 11 oz)
Power Supply:	AC 230 V, 50Hz, AC 240 V, 50Hz (for U.K. model)
Power Consumption:	18 W

- **Remote Control Unit (RC-154)**

Type:	Infrared pulse
Number of Buttons:	41 (including 1 slide switch)
Dimensions (max.):	60 (W) × 177 (H) × 18 (D) mm (20-23/64" × 6-31/32" × 45/64")
Weight:	130 g (Approx. 6.4 oz) (including batteries)

* Maximum dimensions include controls, jacks, and covers. (W) = width, (H) = height, (D) = depth
- For improvement purposes, specifications and functions are subject to change without advanced notice.

16 TROUBLESHOOTING

1. Check that the connections are proper.
2. Check that you are operating the system according to the instructions in the manual.

Check the following table if the system does not seem to be working properly.
If the problem is not solved after checking these points carefully, the system may be malfunctioning. Switch off the power and contact your store of purchase.

	Symptom	Cause	Measures	See Page
Common	Power does not come on when POWER button pressed.	• Power cord not plugged into outlet.	• Plug cord into outlet properly.	5
	No sound produced from speakers.	• VOLUME control set to minimum. • Headphones are plugged in. • Speaker cables not connected to speaker terminals.	• Turn VOLUME control clockwise (↻). • Disconnect headphones. • Connect speaker cables properly.	6 6 5
	Treble not produced. Orientation of sound field not clear.	• Speaker polarities (⊕ and ⊖) not matched.	• Connect speaker cables properly. •	5
	Source other than the desired one is heard.	• Function selector button not set properly.	• Set to desired function.	6
Deck	Cannot record when REC/REC MUTE button pressed.	• No cassette tape loaded. • Accidental erasure prevention tabs of cassette broken off.	• Load tape. • Apply cellophane tape over holes.	14 13
	Sound is interrupted during playback and recording, or treble sound is low.	• Head dirty. • Tape stretched.	• Clean. • Replace tape.	21 –
	Wow (fluctuation) is heavy during playback and recording.	• Capstans and pinch rollers dirty.	• Clean.	21
	Buzzing noise heard during playback.	• Noise from TV. • (Some TVs produce noise.)	• Separate TV from system. • Turn off TV.	– –
Tuner	Hissing noise heard during FM reception.	• Antenna not pointed in proper direction. • Signals weak.	• Change direction of antenna. • Install outdoor antenna.	4 4
	Hissing or scratchy noise heard during AM reception.	• Noise from TV, etc., or interference from other stations.	• Turn off TV. • Change position of loop antenna. • Install outdoor antenna.	– – 4
	Hum noise heard during AM reception.	• Signals coming over power cord are modulated by power source frequency.	• Plug in cord in opposite direction. • Install outdoor antenna.	5 4
CD Player	Disc loaded but total number of tracks not displayed.	• Disc loaded upside-down. • Disc dirty. • Non-standard disc loaded.	• Reload disc. • Clean disc. • Replace with standard disc.	16 21 16
	Operation not performed when buttons pressed, or playback stops in middle of track.	• Disc loaded upside-down. • Foreign object in disc holder. • Disc dirty. • Disc scratched.	• Reload disc. • Remove disc and remove foreign object. • Clean disc. • Replace with non-scratched disc.	16 16 21 –
	Sound skips.	• Dust, fingerprints, or spittle on disc. • Disc scratched. • Player set in shaky, unstable place.	• Clean disc. • Replace with non-scratched disc. • Set player in stable place.	21 – –
	Buzzing noise mixed in with CD sound.	• Signals coming over power cord are modulated by power source frequency.	• Plug in cord in opposite direction.	5

Normal operation may not be possible if there is dirt or other substances on the surface of the internal objective lens or sensor.
These parts must be cleaned periodically depending on the place of installation.
For details, contact your store of purchase.

Avoid using ultrasonic humidifiers nearby.
If ultrasonic humidifiers are used nearby, the calcium, etc., included in the water may be scattered into the air, causing white dust to accumulate on the surface of the objective lens or sensor, resulting in improper operation.

Dew (Condensation) Phenomenon

Dew (water droplets) may form on the lens of the internal optical system or on the disc, or on the rotating parts of the tape deck in situations such as the following:

- Soon after a heater is put on.
- When the set is placed in a steamy or damp room.
- When the set is moved from a cold place to a warm room.

When Condensation Forms

The signals of the disc may not be read and this product will not operate properly. To remove the condensation, take out the disc and switch on the power. The condensation will evaporate within 1 hour and the set will operate normally.

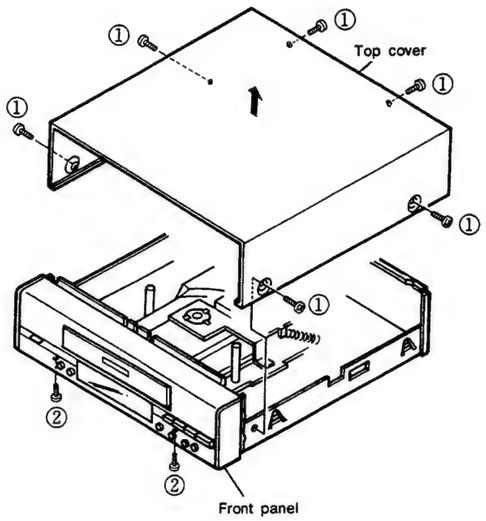
This system consists of precision components using microprocessors. Avoid using it in places where there is much external noise. If used is such places, the system may not operate properly, but this is not a problem with the system. If the system does not operate properly, try performing the desired operation again.

DISASSEMBLY PROCEDURES

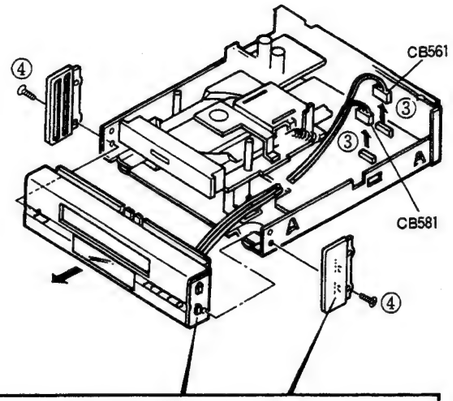
(Follow these procedures in reverse order to reassemble.)

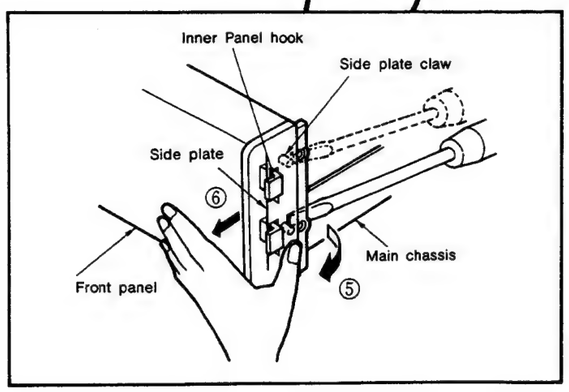
1. Removing the top cover and front panel

① Remove the 6 screws which fasten the top cover.
② Remove the 2 screws of the bottom side which fasten the front panel.



③ Disconnect connectors CB561 and CB581 which are attached to the main unit.
④ Remove the 2 screws which fasten the side plate.
⑤ While disengaging in the direction of the arrow the tabs of the side plate and the holes of the main chassis (with a flat-bladed screwdriver),
⑥ Use your fingers to push out the hook of the inner panel from the side plate in the direction of the arrow.
Using the same method for the left side, remove the side plate.
Remove the front panel in the direction of the arrow.

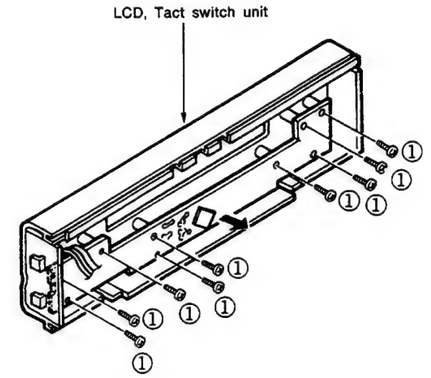




2. Removal of the Various Boards

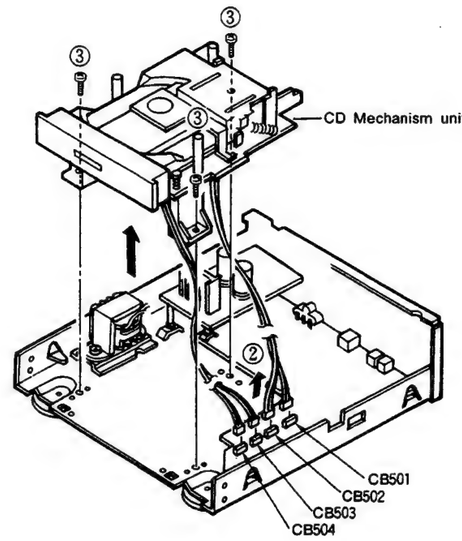
LCD TACT SWITCH UNIT 1U-2478-2

① Remove the 9 screws which fasten the LCD Tact switch unit and remove the board in the direction of the arrow.



3. Removal of the CD Mechanism Unit

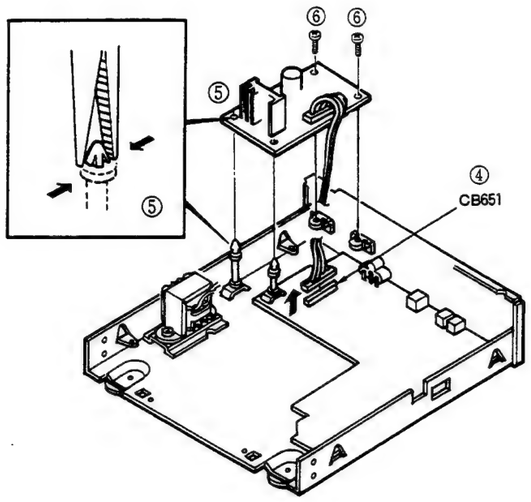
② Disconnect connectors CB501, CB502, CB503, and CB504 which are attached to the main unit.
③ Remove the 3 screws which fasten the CD mechanism unit and remove the mechanism unit in the direction of the arrow.



CD PLAYER SECTION

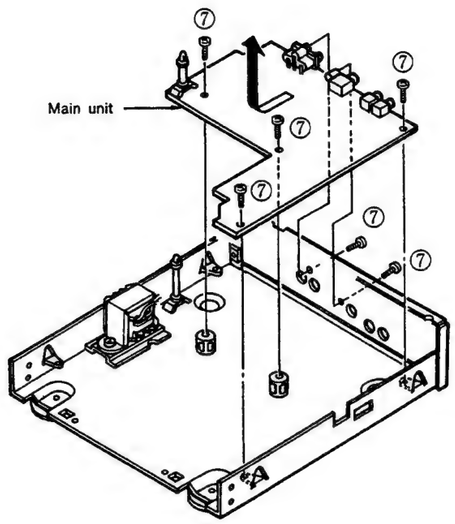
POWER UNIT 1U-2478-3

④ Disconnect connector CB651 which is attached to the main unit.
⑤ Use a pair of long-nosed pliers to disengage the board catch, which fastens the power unit, in the direction of the arrow.
⑥ Remove the 2 screws which fasten the power unit and remove the board in the direction of the arrow.



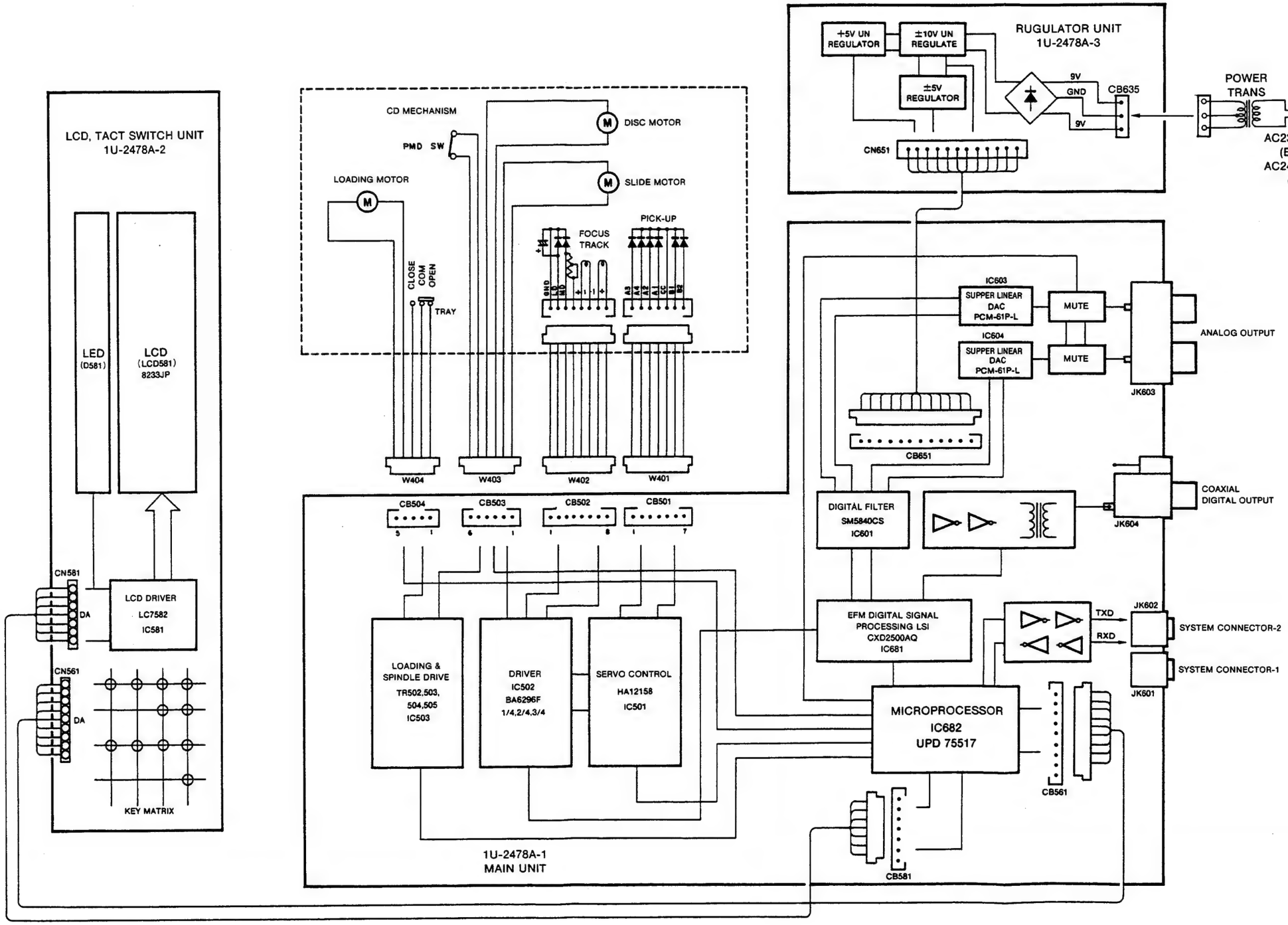
MAIN UNIT 1U-2478-1

⑦ Remove the 6 screws which fasten the main unit and remove the board in the direction of the arrow.



1 2 3 4 5 6 7 8

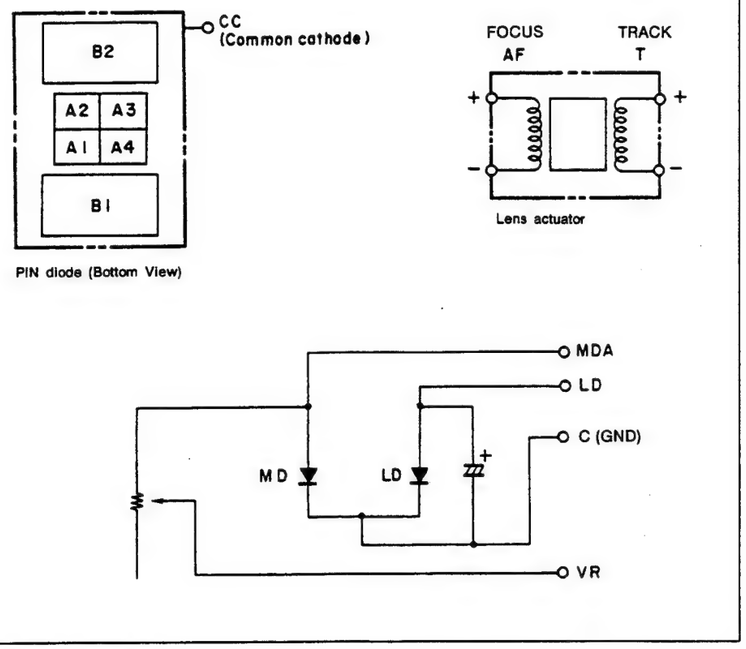
A B C D E



CD PLAYER SECTION

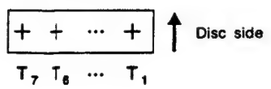
Connections Diagram

Pickup Circuit Diagram



1. PD connector

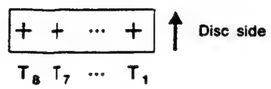
PH pin post 7 pins (Type number B7B-PH-K-S manufactured by Nippon Atchaku Tanshi Hanbai K.K.)



Tn	1	2	3	4	5	6	7
Item	A_4	A_3	A_2	A_1	CC	B_1	B_2

2. LD actuator connector

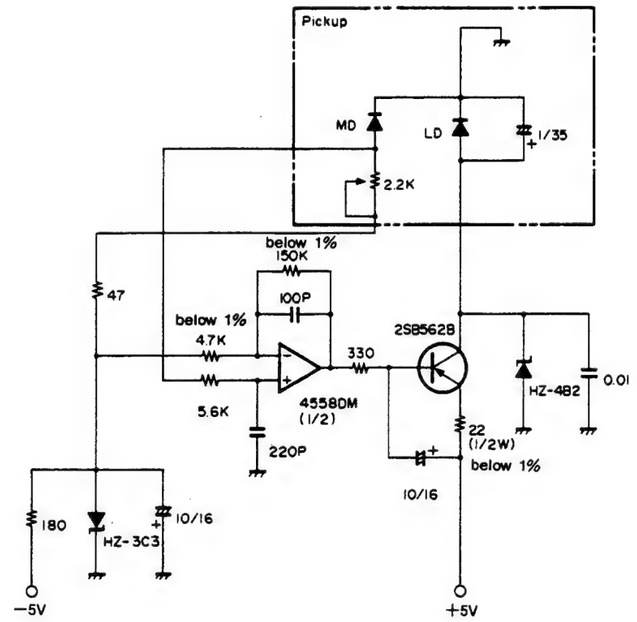
PH pin post 8 pins (Type number B8B-PH-K-S manufactured by Nippon Atchaku Tanshi Hanbai K.K.)



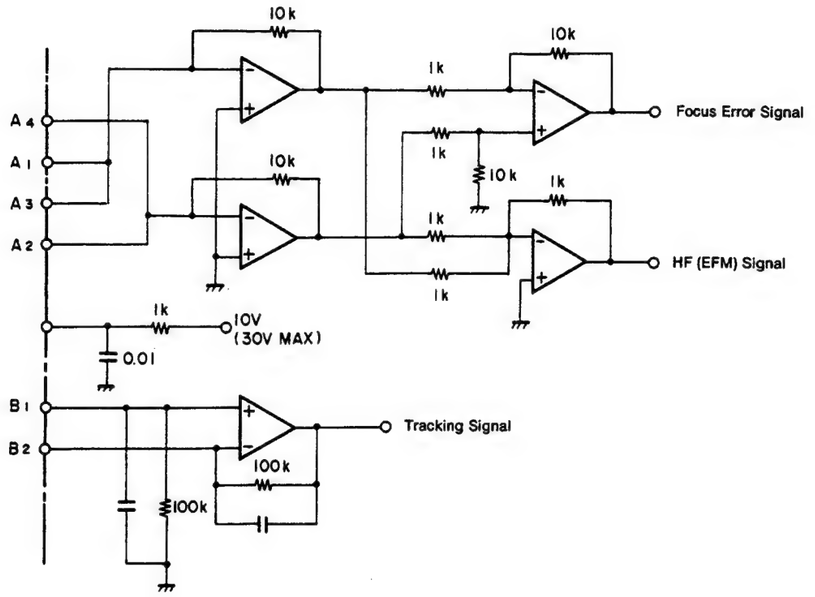
Tn	1	2	3	4	5	6	7	8
Item	C (GND)	LD	MD	VR	TR+	TR−	AF−	AF+

LASER PICKUP

Laser Drive Basic Circuit Diagram



Measurement Circuit Diagram



● Precautions in Use

Read the following carefully before handling.

1. **Laser control circuit**

   The light output of the laser diode (LD) is greatly affected by temperature, so a built-in monitor photodiode should be used in the LD to supplement the light output.

   In order to get rid of the dispersion of the monitor photodiode, the semiconductor resistor accompanying the pickup has been adjusted so that the mirror surface level of the HF signal becomes 250 mV when the measurement circuit of this manual and the basic laser drive circuit are used. When designing a new laser drive circuit, note that the life of the laser will be shortened when the mirror level of the HF signal becomes 275 mV with this measuring circuit.

2. **Wiring**

   Be sure to use the specified connectors for the wiring.

   Note that the eye pattern may deteriorate when there is a microprocessor or other digital noise source in the vicinity from the photodiode to the harness.

   Note that a poor connection related to the LD and actuator connector will cause deterioration of the laser, and so there should not be any looseness of connectors.

● Precautions in Handling

This mechanism has been precisely assembled and adjusted at a special factory. It should not be disassembled or adjusted without good reason. Pay attention to the following points related to handling.

1. General items

(1) **Storage**

Avoid storage in places with high temperatures and high humidity, and in places exposed to a lot of dust.

(2) **Handling**

The unit has been precisely adjusted and care should be taken so as not to expose the unit to shocks through dropping or careless handling.

2. Semiconductor laser (LD)

(1) **Protection of the eyes from the laser**

The output of the LD is via an objective lens and is a maximum of 400 μW, but reaches approximately $1.3 \times 10^4 W/cm_2$ in places where there is condensed light. After being condensed by the objective lens, the beam widens and so is all right at a distance of 30 cm or further, but during operation the LD should never be allowed to be viewed directly or through another lens or mirror since this is dangerous.

(2) **Destruction by surge currents or static electricity**

When a large current flows through the LD, even for a very short period, the strong light which the LD generates itself will advance the deterioration of the LD or destroy it.

Wire a switch into the LD drive circuit or provide another method of preventing the flow of surge currents. Also, when handled without care, the LD can be destroyed instantly by the application of static electricity from the body. Therefore, when handling the LD, be sure to ground your body and ground the measuring instruments, jigs, and tools. It is also desirable to use a grounding mat on the work bench and floor.

3. Lens actuator

(1) The actuator section uses a strong magnetic circuit, so that when magnetic bodies come too close, their characteristics are altered. Also be careful not to allow foreign matter to enter from the cover gap.

(2) Lens cleaning

Dust or dirt adhering to the objective lens will change the performance.

To clean, blow the dirt away with clean air from an air blower.

4. Handling

Be sure not to contact the lens when handling the LD.

Note that direct contact of the body or other objects with the circuit of the LD board will cause deterioration to occur, so sufficient care should be taken.

CD PLAYER SECTION

SERVICE POINTS

1. Parts replacement of the tray mechanism (Figs. 1 and 2)

(1) Removal of the tray

Open the tray and use a flat-bladed screwdriver to press the stopper portions of Fig. 1 (one each in the left and right locations) in the direction of the black arrow, then remove in the direction of the white arrow.

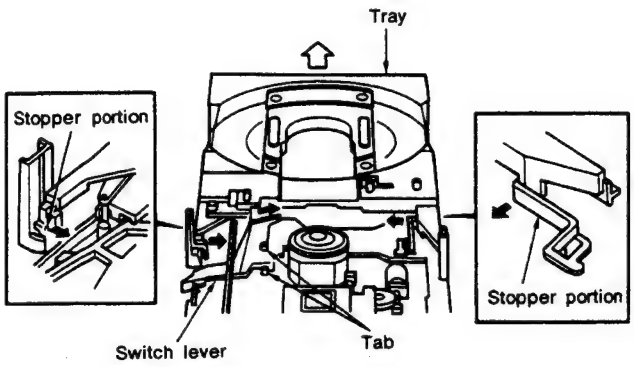


Fig. 1

(2) Mounting of the tray (Figs. 1, 2, and 3)

Rotate the switch lever in the direction of the arrow, set the latches of the tray as illustrated in Fig. 2, then align the rails of the tray in the grooves of the loading plate, and insert so that the pinch lever pins of the switch lever enter into the rack grooves. Push in the tray while pressing the stopper portion inside a little.

(Check that the latches are in the positions illustrated in Fig. 2.)

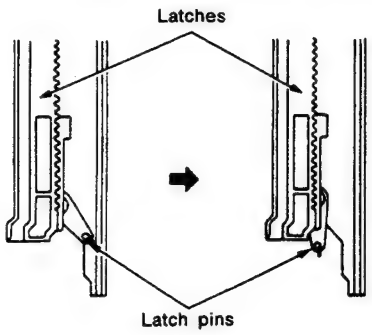


Fig. 2

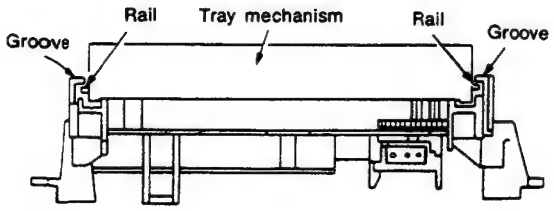


Fig. 3

(3) Replacement of the disc holder (Fig. 4)

With the tray removed, remove tabs Ⓓ and Ⓔ of the disc receptacle of Fig. 4, then lift up and off.

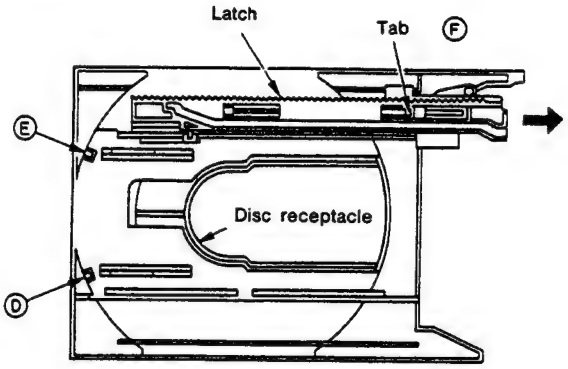


Fig. 4

(4) Replacement of the latches (Fig. 4)

Set the latches into the condition of Fig. 4, lift the latch tab (F) up about 1 mm with a flat-bladed screwdriver and remove the rack in the direction of the arrow.

(5) Removal of the loading motor and switches (Fig. 5)

Remove the belt from the loading motor, then remove the 3 tabs. Remove the fixed tabs from the various switches.

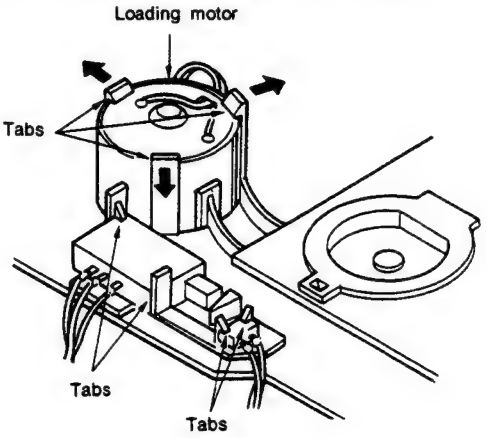


Fig. 5

(6) Replacement of the belt

Replace the belt with the tray removed.

(7) Replacement of the clamper (Fig. 6)

Hook the elongated holes of the clamper onto the C arm, bend the elongated hole sections and attach.

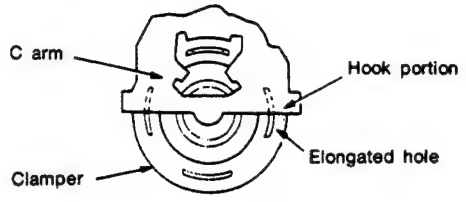


Fig. 6

(8) Replacement of the switch lever (Fig. 1)

Remove the tabs of the bottom side (in 2 locations).

2. Removal of the unit mechanism (Fig. 7)

After removing the loading mechanism, remove the tab of the bottom surface (in one location) as illustrated in Fig. 7.

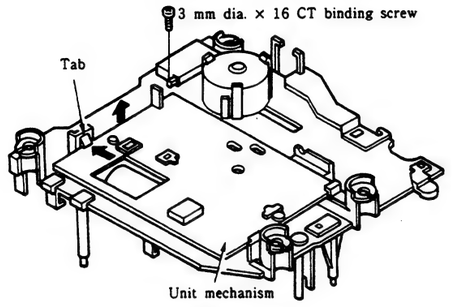
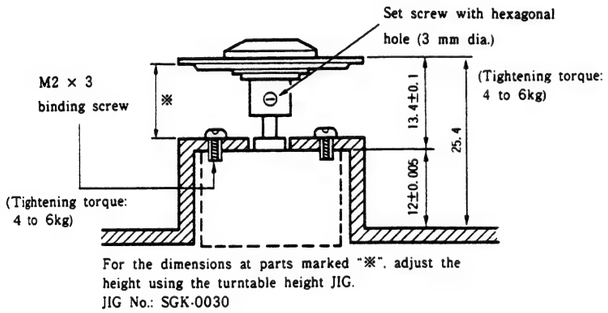


Fig. 7

(1) To replace the DC motor (D2) and the turntable, follow the procedure below

1) Pull the turntable (plastic) off vertically from the unit plate.
2) When fitting on the servicing turntable (metal), make a height adjustment. (Fig. 8)
Do not exert excessive force to the shaft of the DC motor (D2) at this time.



For the dimensions at parts marked "※", adjust the height using the turntable height JIG.
JIG No.: SGK-0030

Fig. 8

3) At the time of service replacement of the DC motor (D2), do not apply excessive force in direction B. When part C of the unit plate is misshapen, it will cause eye pattern deterioration. (Fig. 9)

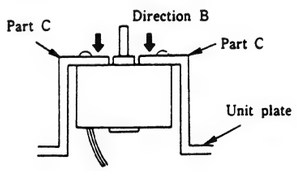


Fig. 9

NOTE:
- Motor replacement or turntable replacement method
Remove the pressure-fitted turntable, and remove the motor screws.
- Do not reuse a turntable (plastic) that has been removed once.

(2) When disassembling and assembling the unit mechanism, assemble with wiring resembling that of Fig. 10

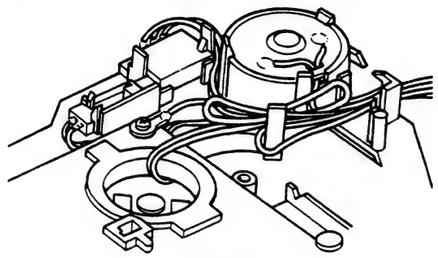


Fig. 10

3. Inspection of the objective lens (Fig. 11)

Handle so as not to get dirt or dust on the objective lens of the lens actuator section. Note that when used for a long period, dirt or dust may have adhered to the objective lens. Try cleaning the surface of the objective lens with a dry, clean cotton swab.
If the dirt still does not come off, moisten the cotton swab with a small amount of water and wipe. When doing this, be careful not to get water on any parts other than the lens.

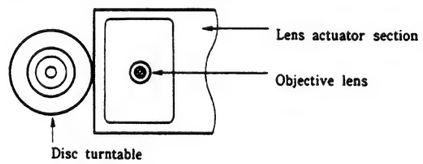


Fig. 11

4. Inspection for laser breakdown

The laser is normally driven with a current of 30 to 80 mA. If this laser drive current value is measured at 120 mA or higher in the circuit, the laser may be thought to be faulty. (The current value is measured by taking the voltage (0.99 to 3.3 V) across both ends of R401, which is 33 ohms).

5. Precautions at time of servicing (Fig. 12)

(1) Semiconductor laser

The semiconductor laser is very susceptible to static electricity destruction and surge currents. Be careful never to touch the terminals of the semiconductor laser and the terminals of the flexible board with your hands or a tool.
As illustrated in Fig. 12, the current and light intensity characteristics increase abruptly once the threshold current value is exceeded.
Also note that this threshold current differs a little from laser to laser. In view of this, when replacing the unit mechanism or any work that involves setting the amount of light of the laser, be sure to turn the adjustment control VR401 fully in the counterclockwise direction, and then raise it to the specified value.

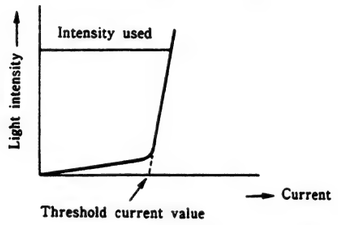


Fig. 12

(2) Handing the unit mechanism (Fig. 13)

When handling the pickup mechanism and the unit mechanism, use a ground ring such as the one illustrated in Fig. 13. (A ground ring can be constructed using ordinary lead wire.)

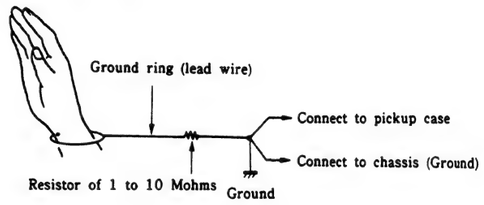


Fig. 13

6. Inspection of the actuator (Fig. 14)

Check the resistance value of the actuator coil. It is normal if the values are as follows:

Focusing coil ..... 30 ohms
Tracking coil ..... 10 ohms

If the coils are open or shorted, the actuator may be thought to be broken. Also, a 1.5 V battery can be used to observe if the lens moves.

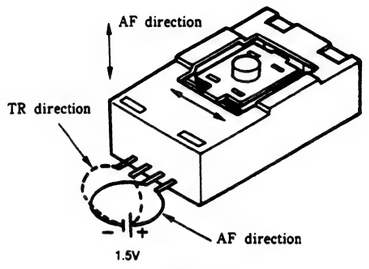


Fig. 14

CD PLAYER SECTION

ADJUSTMENT METHOD

The microprocessor contained in this unit incorporates a service program which allows a wide variety of service adjustments to be conducted easily by using the operation buttons.

1. Method of starting the service program

Switch on the AC power while simultaneously pressing the ▶ PLAY button and the ⏏ OPEN/CLOSE button of the CD unit (UCD-250). When all power has been switched on there will be a transition to the service program. At this time the display section of the CD unit (UCD-250) display tube will indicate "01".

NOTE: Once the service program starts the operation buttons cannot be used for normal operation.

2. Operation functions when the service program is operating

Operation button	Operation function	Description
⏏ OPEN/CLOSE	Opens and closes the disc holder.	● Opening and closing takes place when the rotation of the disc has stopped. ● Other operation buttons are performed when the opening and closing operation is completed.
■ STOP	Stops system operation.	● Track number display becomes 01. ● Press when an adjustment has been completed or is redone.
▶ PLAY	Operates the focus servo and rotates the disc.	● Press at the time of the tracking offset adjustment. ● After the operation is completed, the track number display becomes 02.
⏸ PAUSE	Operates the focus servo, tracking servo, slide servo, and the spindle servo.	● When the play button has been pressed, the tracking servo and slide servo are operated. ● After the operation is completed the track number display becomes 03.
Other buttons	Operation is not normal.	● Do not operate buttons other than the above. ● When a button is operated by mistake, immediately turn the power switch off.

NOTE: Do not use the remote control while the service program is operating.

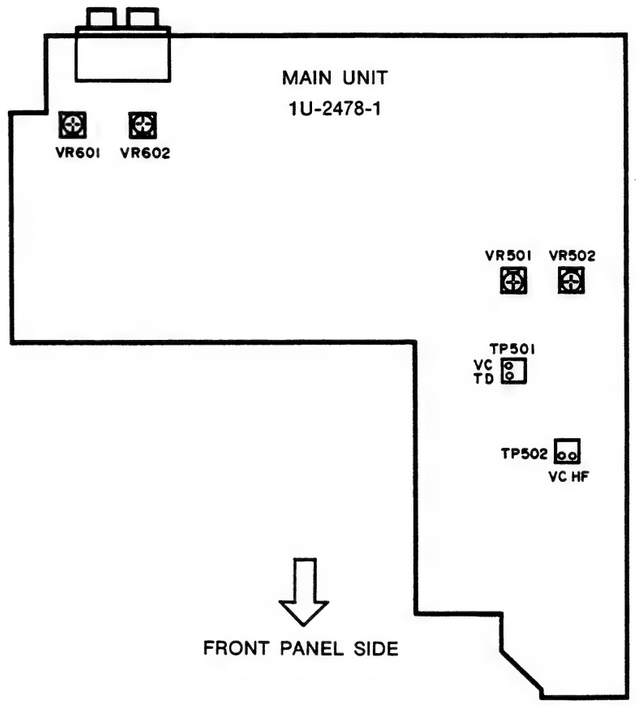
3. Adjustment method

(1) Measuring instruments required in the adjustment

① Dual-trace oscilloscope
② Oscilloscope

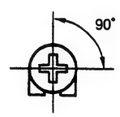
OUTLINE DIAGRAM OF ADJUSTMENT LOCATION

1U-2478-1 MAIN UNIT ASS'Y (Component Side)



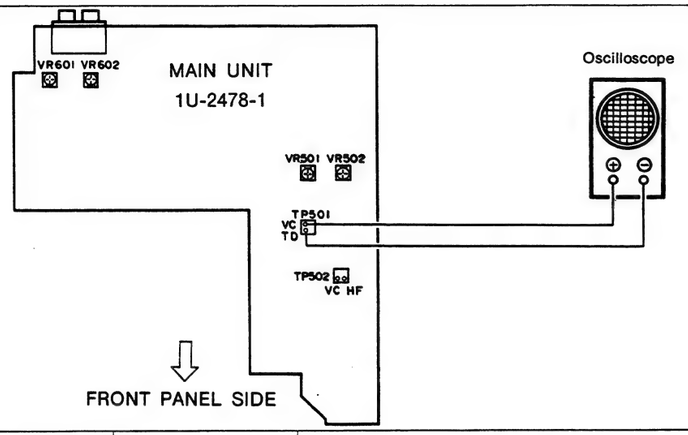
NOTE: VR601 and VR602 have been adjusted before shipping and do not require adjustment.

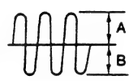
(2) Adjustment preparation

1.	Set the adjustment control (VR501, 502) to the position illustrated.	VR501 (T-OFFSET) VR502 (F-OFFSET) 
2.	Adjustment step	1. Tracking offset 2. Focus offset

(3) Tracking offset adjustment

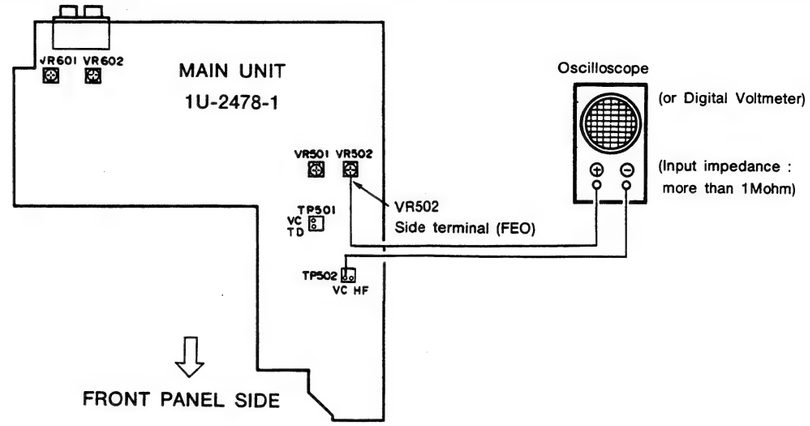
Wiring Diagram

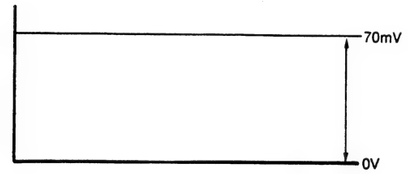


Oscilloscope (DC range)		Adjustment location	Check items	Adjustment procedure
V	H	(Control)	DC Voltmenter	
0.2V/ div	1~2ms div	VR501	 A = B	1. ⏏ OPEN/CLOSE Press the OPEN/CLOSE button and place an adjustment disc in the disc holder. 2. ⏏ OPEN/CLOSE Press the OPEN/CLOSE button again and close the disc holder. 3. ▶ PLAY Press the PLAY button and check that the display indicates "02". 4. Short circuit the (+) and (−) terminals of the oscilloscope and check the board wiring. 5. Adjust the VR501 "T-OFFSET" control and set the upper and lower amplitude of the waveform to be equal.

(4) Focus offset Adjustment

Wiring diagram



Oscilloscope		Adjustment location	Check items
V	H	Control	Oscilloscope
50mV/div or 20mV/div	0.2 μ/div or 0.5 μ/div	VR502	

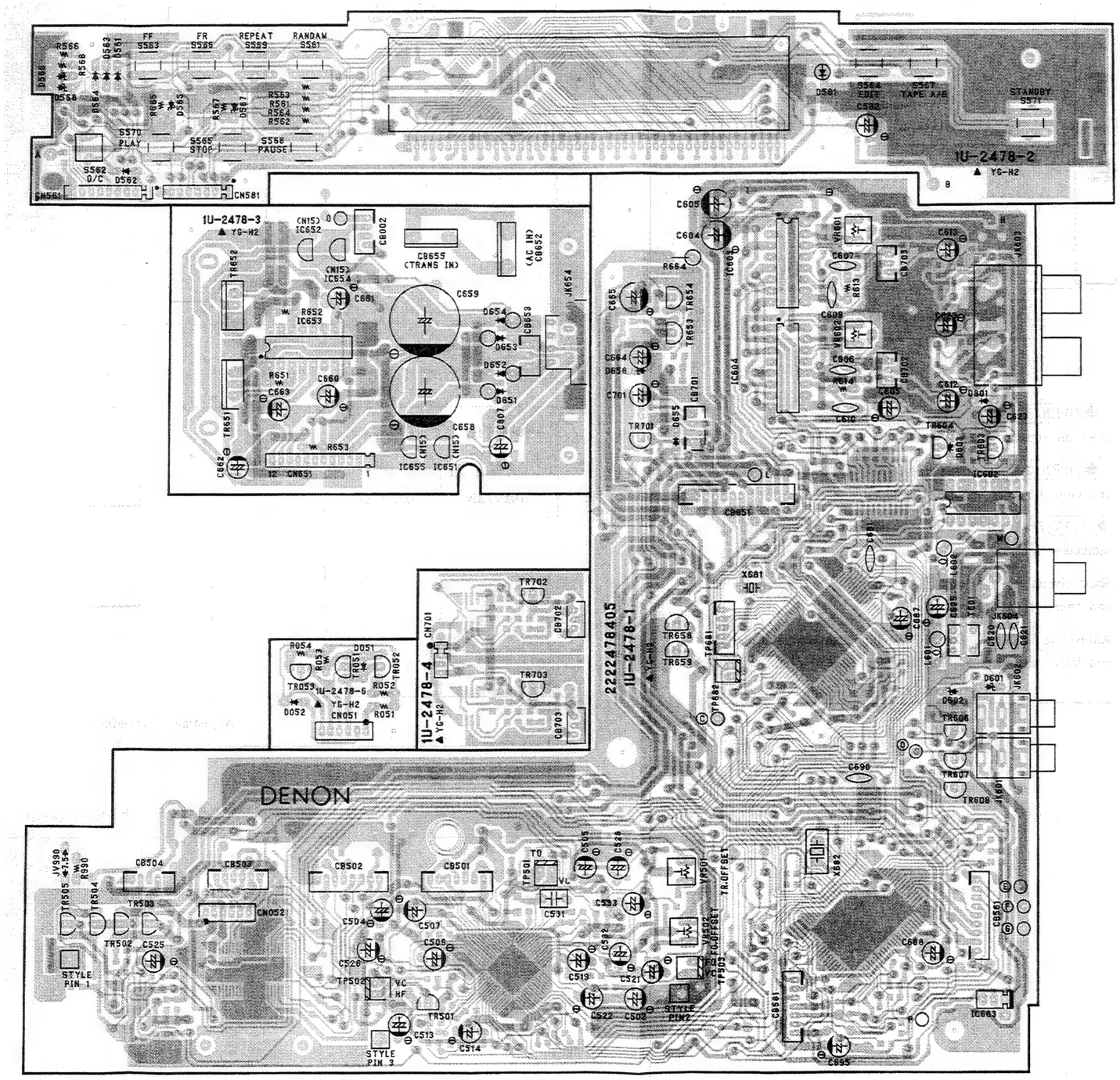
Adjustment Procedure

1. Press the ■ STOP button.
2. Adjust VR502 "F. OFFSET" and set the FEO voltage to +70 mV (±10 mV).

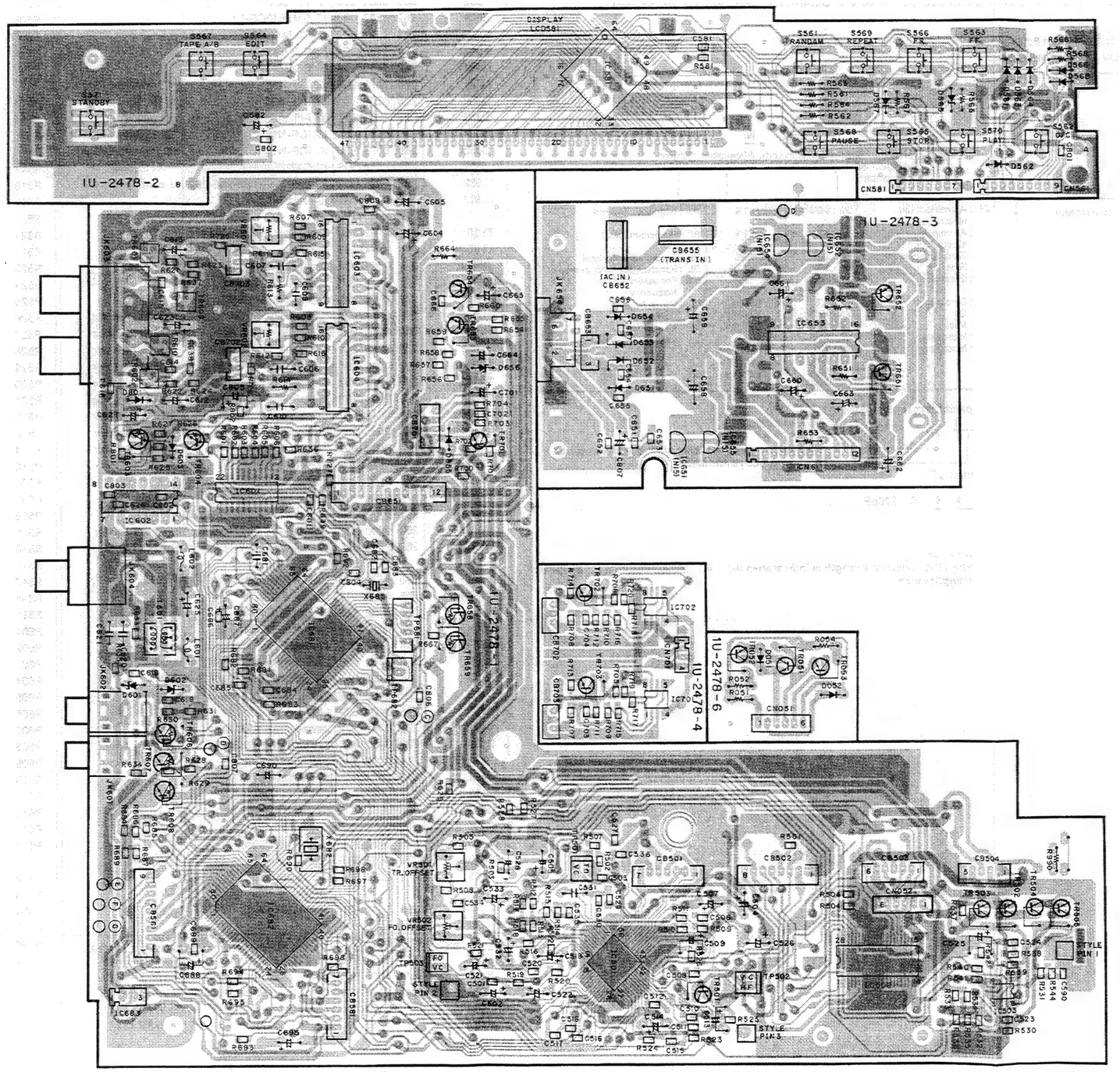
CD PLAYER SECTION

PRINTED WIRING BOARD

1U-2478 UCD-250 UNIT ASS'Y Component Side



Pattern Side



CD PLAYER SECTION

NOTE ON PARTS LIST
- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W. Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▩ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN 14K 2E 182 G FR
(Type / Shape and performance / Power / Resistance / Allowable error / Others)

RD : Carbon Film	2B : 1/8W	F : ±1%	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : ±2%	NL : Low noise type
RS : Metallic oxide Film	2H : 1/2W	J : ±5%	NB : Non-burning type
RW : Winding	3A : 1W	K : ±10%	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : ±20%	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

*** Resistance**

1 8 2 ⇨ 1800 ohm = 1.8 kohm
- 2-digit effective number
- Indicates number of zeros after effective number
- Units: ohm

1 R 2 ⇨ 1.2 ohm
- 2-digit effective number, decimal point indicated by R.
- 1-digit effective number.
- Units: ohm

*** Capacity (electrolyte only)**

2 2 R ⇨ 2200 µF
- 2-digit effective number.
- Indicates number of zeros after effective number.
- Units: µF

2 R 2 ⇨ 2.2 µF
- 2-digit effective number, decimal point indicated by R.
- 1-digit effective number.
- Units: µF

• Capacitors

Ex.: CE 04W 1H 2R2 M BP
(Type / Shape and performance / Dielectric strength / Capacity / Allowable error / Others)

CE : Aluminum foil electrolyte	0J : 6.3V	F : ±1%	HS : High stability type
CA : Aluminum solid electrolyte	1A : 10V	G : ±2%	BP : Non-polar type
CS : Tantalum electrolyte	1C : 16V	J : ±5%	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : ±10%	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : ±20%	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : +80% −20%	U : UL part
CP : Oil	2A : 100V	P : +100% −0%	C : CSA part
CM : Mica	2B : 125V	C : ±0.25pF	W : UL-CSA type
CF : Metallized	2C : 160V	D : ±0.5pF	F : Lead wire forming
CH : Metallized	2D : 200V	= : Others	
	2E : 250V		
	2H : 500V		
	2J : 630V		

*** Capacity (except electrolyte)**

2 R 2 ⇨ 2200pF = 2200 µF = 0.002 µF
- 2-digit effective number.
- (More than 2) — Indicates number of zeros after effective number.
- Units: µF

2 2 1 ⇨ 220pF
- 2-digit effective number.
- (0 or 1) — Indicates number of zeros after effective number.
- Units: pF
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

1U-2478A P.W.B UNIT ASSY PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC501	263 0821 000	IC HA12158	
IC502	263 0805 903	IC BA6296FP	
IC503	263 0615 902	IC BA15218F	
IC581	263 0533 000	IC LC7582	
IC601	262 1397 909	IC SM5840CS-L1	
IC602	262 1126 002	IC PC74HC00P	
IC603	262 1409 004	IC PCM61P-L	
IC604	262 1409 004	IC PCM61P-L	
IC651	268 0073 905	IC ICP-N15	IC Protector 15 V
IC652	268 0073 905	IC ICP-N15	IC Protector 15 V
IC653	263 0693 005	IC M5290P	
IC654	268 0073 905	IC ICP-N15	IC Protector 15 V
IC655	268 0073 905	IC ICP-N15	IC Protector 15 V
IC681	262 1514 009	IC CXD2500AQ	
IC682	262 1625 406	IC µPD75517GF-150-3B9	µ com
IC683	262 0678 001	IC MN1280-S	
TR501	271 0102 937	Transister 2SA1015(GR/Y)	
TR502	274 0144 907	Transister :BC368	
TR503	272 0101 902	Transister :BC369	
TR504	274 0144 907	Transister :BC368	
TR505	272 0101 902	Transister :BC369	
TR601	269 0066 902	Transister DTC323TK	Built in Resistor
TR602	269 0066 902	Transister DTC323TK	Built in Resistor
TR603	269 0020 906	Transister DTC114ES	Built in Resistor
TR604	269 0046 906	Transister DTA114ES	Built in Resistor
TR606	269 0040 902	Transister DTC144ES	Built in Resistor
TR607	269 0040 902	Transister DTC144ES	Built in Resistor
TR608	269 0040 902	Transister DTC144ES	Built in Resistor
TR609	269 0066 902	Transister DTC323TK	Built in Resistor
TR610	269 0066 902	Transister DTC323TK	Built in Resistor
TR651	274 0415 003	Transister :BD935F	
TR652	272 0102 008	Transister :BD936F	
TR653	274 0144 907	Transister :BC368	
TR654	273 0222 907	Transister 2SC2458(Y/GR)	
TR658	269 0020 906	Transister DTC114ES	Built in Resistor
TR659	269 0020 906	Transister DTC114ES	Built in Resistor
D561	276 0432 903	Diode 1SS270A	
D562	276 0432 903	Diode 1SS270A	
D563	276 0432 903	Diode 1SS270A	
D564	276 0432 903	Diode 1SS270A	
D565	276 0462 902	Zener Diode HZS6B-1	6 V
D566	276 0462 902	Zener Diode HZS6B-1	6 V
D567	276 0462 902	Zener Diode HZS6B-1	6 V
D568	276 0462 902	Zener Diode HZS6B-1	6 V
D581	393 9470 009	LED	LED
D601	276 0462 902	Zener Diode HZS6B-1	6 V
D602	276 0462 902	Zener Diode HZS6B-1	6 V
D603	276 0432 903	Diode 1SS270A	
D651	276 0553 905	Diode 1SR35-200A	
D652	276 0553 905	Diode 1SR35-200A	
D653	276 0553 905	Diode 1SR35-200A	
D654	276 0553 905	Diode 1SR35-200A	
D655	276 0432 903	Diode 1SS270A	
D656	276 0462 915	Zener Diode HZS6B-2	6 V
D801	276 0503 900	Diode 1SS198	
	393 4141 003	LCD 8233 JP	LCD
RESISTORS GROUP (Not included Carbon Film ±5%,1/4W Type. Refer to the Scematic Diagram for those Parts.)			
R008	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R055	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R056	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R501	247 0004 922	Chip Carbon 47 ohm 1/10W	RM73B--470J
R502	247 0011 902	Chip Carbon 33k ohm 1/10W	RM73B--333J
R503	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R504	247 0010 961	Chip Carbon 22k ohm 1/10W	RM73B--223J
R505	247 0008 931	Chip Carbon 2.4kohm 1/10W	RM73B--242J
R506	247 0011 902	Chip Carbon 33k ohm 1/10W	RM73B--333J
R507	247 0010 987	Chip Carbon 27k ohm 1/10W	RM73B--273J
R508	247 0008 931	Chip Carbon 2.4kohm 1/10W	RM73B--242J
R509	247 0005 976	Chip Carbon 200 ohm 1/10W	RM73B--201J
R510	247 0008 902	Chip Carbon 1.8kohm 1/10W	RM73B--182J
R511	247 0009 969	Chip Carbon 8.2kohm 1/10W	RM73B--822J
R512	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R513	247 0010 929	Chip Carbon 15k ohm 1/10W	RM73B--153J
R514	247 0009 972	Chip Carbon 9.1kohm 1/10W	RM73B--912J
R515	247 0012 901	Chip Carbon 82k ohm 1/10W	RM73B--823J
R516	247 0010 903	Chip Carbon 12k ohm 1/10W	RM73B--123J
R517	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R518	247 0010 929	Chip Carbon 15k ohm 1/10W	RM73B--153J
R519	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R520	247 0010 929	Chip Carbon 15k ohm 1/10W	RM73B--153J
R521	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R522	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
R523	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R524	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R525	247 0003 949	Chip Carbon 22 ohm 1/10W	RM73B--220J
R526	247 0010 903	Chip Carbon 12k ohm 1/10W	RM73B--123J
R527	247 1009 984	Chip Carbon 10 k ohm 1/8W	RM73B2B103J
R528	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R529	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R530	247 0012 914	Chip Carbon 91k ohm 1/10W	RM73B--913J
R531	247 0005 989	Chip Carbon 220 ohm 1/10W	RM73B--221J
R532	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R533	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
R534	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R535	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R536	247 0009 943	Chip Carbon 6.8kohm 1/10W	RM73B--682J
R537	247 0010 961	Chip Carbon 22k ohm 1/10W	RM73B--223J
R538	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R539	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R540	247 0009 943	Chip Carbon 6.8kohm 1/10W	RM73B--682J
R541	247 0009 956	Chip Carbon 7.5kohm 1/10W	RM73B--752J
R542	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R544	247 0003 949	Chip Carbon 22 ohm 1/10W	RM73B--220J
R581	247 0011 957	Chip Carbon 51k ohm 1/10W	RM73B--513J
R601	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R602	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R603	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R604	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R605	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R606	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R607	247 0012 998	Chip Carbon 200kohm 1/10W	RM73B--204J
R608	247 0012 998	Chip Carbon 200kohm 1/10W	RM73B--204J
R609	247 0013 984	Chip Carbon 470kohm 1/10W	RM73B--474J
R610	247 0013 984	Chip Carbon 470kohm 1/10W	RM73B--474J
R611	247 0014 967	Chip Carbon 1 M ohm 1/10W	RM73B--105J
R612	247 0014 967	Chip Carbon 1 M ohm 1/10W	RM73B--105J
R615	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R616	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R621	247 0007 903	Chip Carbon 680 ohm 1/10W	RM73B--681J
R622	247 0007 903	Chip Carbon 680 ohm 1/10W	RM73B--681J
R623	247 0010 990	Chip Carbon 30k ohm 1/10W	RM73B--303J
R624	247 0010 990	Chip Carbon 30k ohm 1/10W	RM73B--303J
R625	247 0004 993	Chip Carbon 91 ohm 1/10W	RM73B--910J
R626	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R627	247 0012 998	Chip Carbon 200kohm 1/10W	RM73B--204J
R628	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R629	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R630	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R631	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J

Ref. No.	Part No.	Part Name	Remarks
R633	247 0004 977	Chip Carbon 75 ohm 1/10W	RM73B--750J
R634	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R635	247 0005 905	Chip Carbon 100 ohm 1/10W	RM73B--101J
R636	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R637	247 0005 963	Chip Carbon 180 ohm 1/10W	RM73B--181J
R638	247 0005 963	Chip Carbon 180 ohm 1/10W	RM73B--181J
R639	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R654	247 0007 945	Chip Carbon 1 k ohm 1/10W	RM73B--102J
R655	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R656	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R657	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R658	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R659	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
R660	247 0011 944	Chip Carbon 47k ohm 1/10W	RM73B--473J
⚠R664	244 2051 987	Metal Oxide 47 ohm 7W(NB)	RS14B3A4R7JNBS(S)
R667	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R681	247 0008 960	Chip Carbon 3.3kohm 1/10W	RM73B--332J
R682	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R683	247 0009 943	Chip Carbon 6.8kohm 1/10W	RM73B--682J
R684	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J
R685	247 0008 928	Chip Carbon 2.2kohm 1/10W	RM73B--222J
R686	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R687	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R689	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R690	247 0014 967	Chip Carbon 1 M ohm 1/10W	RM73B--105J
R692	247 0008 915	Chip Carbon 2 k ohm 1/10W	RM73B--202J
R693	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R694	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R695	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R696	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R698	247 0009 985	Chip Carbon 10k ohm 1/10W	RM73B--103J
R725	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R726	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R727	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R801	247 0018 905	Chip Carbon 0 ohm 1/10W	RM73B--0R0K
R802	247 0012 927	Chip Carbon 100kohm 1/10W	RM73B--104J
VR501	211 6087 931	Semi Fixed Resistor 4.7k ohm	V06PB472
VR502	211 6087 928	Semi Fixed Resistor 100k ohm	V06PB104
VR601	211 6087 928	Semi Fixed Resistor 100k ohm	V06PB104
VR602	211 6087 928	Semi Fixed Resistor 100k ohm	V06PB104

CAPACITORS GROUP			
C501	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C502	254 4250 929	Electrolytic 100µF/6.3 V	CE04W0J101M
C503	257 0008 983	Chip Ceramic 1000 pF/50 V	CK73B1H102K
C504	254 4260 935	Electrolytic 0.47µF/50 V	CE04W1HR47M
C505	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C506	257 0004 987	Chip Ceramic 120 pF/50 V	CC73SL1H121J
C507	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C508	257 0009 937	Chip Ceramic 2700 pF/50 V	CK73B1H272K
C509	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C510	257 0011 967	Chip Ceramic 0.033µF/25 V	CK73B1E333K
C511	257 0009 924	Chip Ceramic 2200 pF/50 V	CK73B1H222K
C512	257 0010 926	Chip Ceramic 0.015µF/50 V	CK73B1H153K
C513	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C514	254 4260 935	Electrolytic 0.47µF/50 V	CE04W1HR47M
C515	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C516	257 0008 983	Chip Ceramic 1000 pF/50 V	CK73B1H102K
C517	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C518	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C519	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C520	257 0009 979	Chip Ceramic 5600 pF/50 V	CK73B1H562K
C521	254 4260 919	Electrolytic 0.22µF/50 V	CE04W1HR22M
C522	254 4254 909	Electrolytic 10µF/16 V	CE04W1C100M
C523	257 0009 979	Chip Ceramic 5600 pF/50 V	CK73B1H562K
C524	257 0010 942	Chip Ceramic 0.022µF/50 V	CK73B1H223K

Ref. No.	Part No.	Part Name	Remarks
C525	254 4260 964	Electrolytic 3.3µF/50 V	CE04D1H3R3M
C525	254 4252 930	Electrolytic 100µF/10 V	CE04W1A101M
C526	254 4250 929	Electrolytic 100µF/6.3 V	CE04W0J101M
C527	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C528	254 4254 938	Electrolytic 47µF/16 V	CE04W1C470M
C529	257 1011 995	Chip Ceramic 0.056µF/50 V	CK73B1H563K
C530	257 0010 955	Chip Ceramic 0.027µF/50 V	CK73B1H273K
C531	256 1034 995	Metalized 0.15µF/50 V	CF93A1H154J
C532	254 4254 912	Electrolytic 22µF/16 V	CE04W1C220M
C533	254 4260 919	Electrolytic 0.22µF/50 V	CE04W1HR22M
C534	257 0008 983	Chip Ceramic 0.22µF/50 V	CE04W1HR22M
C535	257 0006 901	Chip Ceramic 390 pF/50 V	CC73SL1H391J
C536	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C581	257 0006 969	Chip Ceramic 680 pF/50 V	CC73SL1H681J
C582	254 4193 947	Electrolytic 100µF/16 V	CE04W1C101M(SRA)
C590	257 0014 935	Chip Ceramic 0.1µF/25 V	CK73F1E104K
C601	257 1009 923	Chip Ceramic 330 pF/50 V	CK73B1H331K
C602	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C604	254 4254 930	Electrolytic 100µF/10 V	CE04W1A101M
C605	254 4254 930	Electrolytic 100µF/10 V	CE04W1A101M
C606	255 4235 963	Plastic Film 0.0056µF/100V	CQ93P2A562J(NH)
C607	255 4235 963	Plastic Film 0.0056µF/100V	CQ93P2A562J(NH)
C609	253 4456 908	Ceramic 680 pF/50 V	CC45SL1H681J
C610	253 4456 908	Ceramic 680 pF/50 V	CC45SL1H681J
C612	254 4313 918	Electrolytic 10µF/50 V	CE04W1H100M(ASF)
C613	254 4313 918	Electrolytic 10µF/50 V	CE04W1H100M(ASF)
C614	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C615	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C616	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C618	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C619	257 0006 927	Chip Ceramic 470 pF/50 V	CC73SL1H471J
C620	253 1146 907	Ceramic 0.01µF/50 V	CK45F1H103Z
C621	253 4452 902	Ceramic 470 pF/50 V	CC45SL1H471J
C623	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C625	254 4254 925	Electrolytic 33µF/16 V	CE04W1C330M
C626	254 0004 961	Chip Ceramic 100 pF/50 V	CC73SL1H101J
C627	254 4254 954	Electrolytic 220µF/16 V	CE04W1C221M
C651	257 1011 908	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C652	257 1011 908	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C653	257 1011 908	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C654	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C655	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C656	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C658	254 4255 704	Electrolytic 3300µF/16 V	CE04W1C332MC
C659	254 4255 704	Electrolytic 3300µF/16 V	CE04W1C332MC
C660	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C661	254 4260 964	Electrolytic 3.3µF/50 V	CE04W1H3R3M
C662	254 4254 954	Electrolytic 220µF/16 V	CE04W1C221M
C663	254 4254 954	Electrolytic 220µF/16 V	CE04W1C221M
C665	254 4254 941	Electrolytic 100µF/16 V	CE04W1C101M
C666	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C681	253 1146 907	Ceramic 0.01µF/50 V	CK45F1H103Z
C682	257 0001 951	Chip Ceramic 3 pF/50 V	CC73SL1H3R0C
C683	257 0001 977	Chip Ceramic 5 pF/50 V	CC73SL1H5R0C
C684	257 1011 982	Chip Ceramic 0.047µF/50 V	CK73B1H473K
C685	257 0009 908	Chip Ceramic 1500 pF/50 V	CK73B1H152K
C686	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C687	254 4250 932	Electrolytic 220µF/6.3 V	CE04W0J221M
C688	254 4250 929	Electrolytic 100µF/6.3 V	CE04W0J101M
C689	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C690	253 1146 907	Ceramic 0.01µF/50 V	CK45F1H103Z
C695	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C801	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C803	257 0010 900	Chip Ceramic 0.01µF/50 V	CK73B1H103K
C804	257 0004 961	Chip Ceramic 100 pF/50 V	CC73SL1H101J
C805	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M
C807	254 4260 948	Electrolytic 1µF/50 V	CE04W1H010M

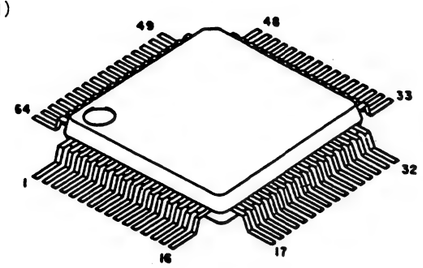
Ref. No.	Part No.	Part Name	Remarks
C807	257 0010 942	Chip Ceramic 0.022µF/50 V	CK73B1H223K
C808	257 0010 942	Chip Ceramic 0.022µF/50 V	CK73B1H223K

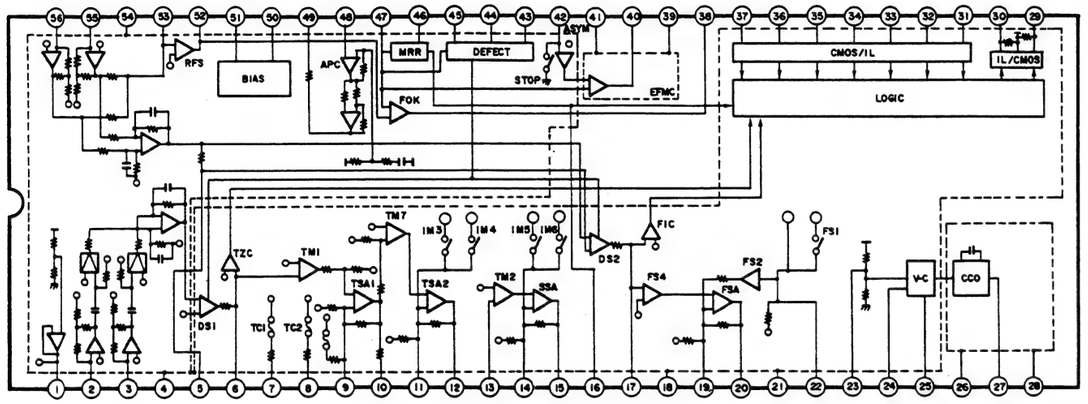
OTHERS GROUP				Q'ty
	—	(P.W.Board)		1
L601	235 0049 900	Beads Inductor Tape		1
L602	235 0049 900	Beads Inductor Tape		1
	212 5604 910	Tact Switch		11
	449 0057 009	LCD Holder		1
	417 0307 008	Heat Sink		1
	470 0012 022	Pan Screw 3×12 with SW.W		2
X681	399 0112 005	Crystal (16.934MHz)		1
X682	399 9018 003	Ceramic Vibrator	CST 4.00MGW	1
T601	231 8063 009	Pulse Trans		1
JK601	204 8421 005	Mini Jack		1
JK602	204 8421 005	Mini Jack		1
JK603	204 8413 000	2 P Pin Jack(C-GND)		1
JK604	204 8366 005	1 P Pin Jack		1
JK654	204 2429 003	7 P System Socket		1
CN581	204 2513 029	7 P KR-DA Conn. Cord		1
CN561	204 2561 000	9 P KR-DA Conn. Cord		1
CN651	204 6286 035	12 P PH-SAN Conn. Cord		1
CB501	205 0343 074	7 P Conn. Base(KR-PH)		1
CB502	205 0343 087	8 P Conn. Base(KR-PH)		1
CB503	205 0343 061	6 P Conn. Base(KR-PH)		1
CB504	205 0343 058	5 P Conn. Base(KR-PH)		1
CB561	205 0343 090	9 P Conn. Base(KR-PH)		1
CB581	205 0343 074	7 P Conn. Base(KR-PH)		1
CB651	205 0375 026	12 P Conn. Base(KR-PH)		1
TP501	205 0133 022	2 P NH Conn. Base		1
TP502	205 0133 022	2 P NH Conn. Base		1
TP503	205 0133 022	2 P NH Conn. Base		1
	205 0452 004	Style Pin		2
	203 0374 021	1 P SIN Conn. Assy		1
	203 0340 068	1 P Contact Assy		1
CB653	205 0233 032	3 P EH Conn. Base		1
CB655	205 0581 001	2 P VH Conn. Base		1
CB655	205 0624 007	:2 P AC Conn. Base		1

CD PLAYER SECTION

● IC's

HA12158 (IC501)



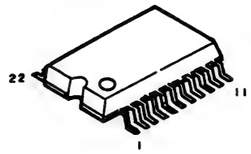


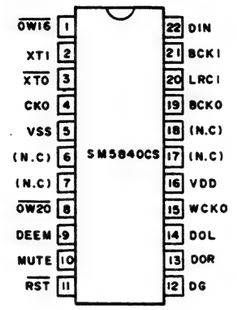
● Pin function table

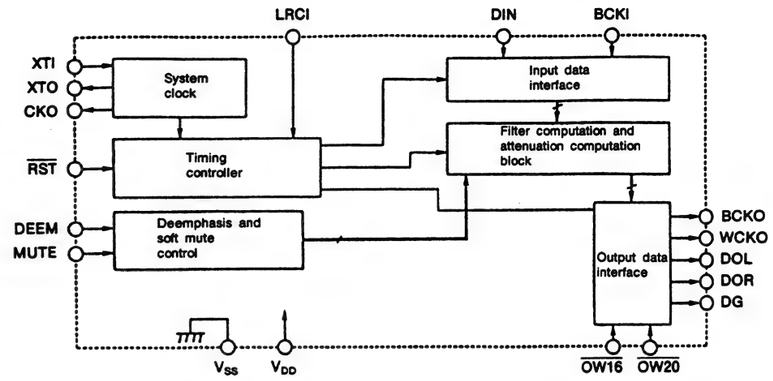
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	TG2	I	TG2 switch	29	LMSW	I	Limit switch input
2	TS1⊖	I	TSA1 ⊖ input	30	LDSW	I	Laser switch input
3	TS10	O	TSA1 output	31	FOK	O	FOK comparator output
4	TS2⊖	I	TSA2 ⊖ input	32	GEFM	GND	EFM comparator ground
5	TS20	O	TSA2 output	33	EFMC	O	EFM comparator output
6	TM2	I	TM2 input	34	VEFM	Vcc	EFM comparator Vcc
7	SS⊖	I	SSA ⊖ input	35	DSLC	I	Data slice level control input
8	SSO	O	SSA output	36	DFIN	I	Defect comparator input
9	MIRR	O	Mirror comparator output	37	DFO	O	Defect signal output
10	FE	I/O	Focus error signal output, FS4 input	38	DFH	O	Defect hold signal output
11	SG	GND	Servo block ground	39	MIRH	O	Error hold signal output
12	FS⊖	I	SSA ⊖ input	40	EFMI	I	EFM signal output
13	FSO	O	FSA input	41	MD	I	APC amplifier input
14	SVCC	Vcc	Servo block Vcc	42	LD	O	APC amplifier output
15	FUD	O	Focus up/down voltage output	43	BYPS	O	Capacitor connection pin for ripple filter
16	VCR	I/O	VCO reference voltage	44	ISET	O	Reference current setting
17	PDIN	I	VCO control voltage input	45	RFO	O	RFS output
18	FRA	O	VCO free-run frequency setting	46	RF⊖	I	RFS ⊖ input
19	VVcc	Vcc	VCO Vcc	47	PVcc	Vcc	Pre-block Vcc
20	VCO	O	VCO output	48	RF1	I	RF1 (I/V conversion block) input
21	VGND	GND	VCO ground	49	RF2	I	RF2 (I/V conversion block) input
22	COUT	O	Track count signal output	50	VREF	O	Reference voltage output
23	SENS	O	FZC and TZC signal output	51	TR1	I	TR1 (1/V conversion amplifier) input
24	XRST	I	Reset signal output	52	TR2	I	TR2 (1/V conversion amplifier) input
25	DIRC	I	Direct control signal output	53	PG	GND	Preamplifier block ground
26	XLT	I	Data transfer signal input	54	FH	O	Focus error hold signal output
27	DATA	I	Data signal input	55	TE	I/O	Track error signal output, TMI input
28	CLK	I	Data sync clock input	56	TG1	I	TG1 switch

SEMICONDUCTORS

SM5840CS (IC601)





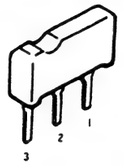


● Pin Description

Pin number DIP	Pin name	I/o	Function			
1	$\overline{OW16}$	ip	Selection pin 1 for number of output bits (NOTE) NS-ON : Noise shaper on NS-OFF : Noise shaper off	Setting		$\overline{OW20}$ H: 18bit output (NS-ON) / 16bit output (NS-ON); $\overline{OW20}$ L: 20bit output (NS-ON) / 18bit output (NS-ON)
				$\overline{OW16}$	H	18bit output (NS-ON) / 20bit output (NS-ON)
					L	16bit output (NS-ON) / 18bit output (NS-ON)
2	XTI	i	Oscillator input pin			
3	XTO	o	Oscillator input pin			
4	CKO	o	Oscillator output clock (Frequency is the same as XTI)			
5	Vss	—	Ground pin			
	(N.C)					
	(N.C)					
6	$\overline{OW20}$	ip	Selection pin 2 for number of output bits (NOTE) See the column of $\overline{OW16}$.	(When $\overline{OW20}$ is low level : 18 bits or 20 bits) (When $\overline{OW20}$ is high level : 18 bits or 16 bits)		
7	DEEM	ip	Deemphasis signal input	(When DEM is low level : Deemphasis is off) (When DEM is high level : Deemphasis is on)		
8	MUTE	ip	Mute signal input	(When MUTE is low level : Soft mute is off) (When MUTE is high level : Soft mute is on)		
9	$\overline{RST}$	ip	System reset (Initialization)			
10	DG	o	Deglitch output			
11	DOR	o	Right channel data output			
12	DOL	o	Left channel data output			
13	WCKO	o	Output word clock			
14	V_{DD}	—	Supply pin (5 V : Standard)			
	(N.C)					
	(N.C)					
15	BCKO	o	Output bit clock			
16	LRCI	ip	Clock of the input data sample rate (fs)			
17	BCKI	ip	Input bit clock			
18	DIN	ip	Input data			

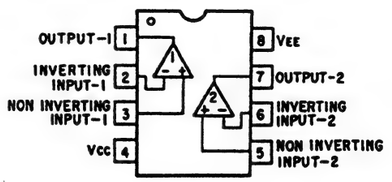
i : Input pin ip : Input pin with pull-up resistor o : Output pin

MN1280S (IC683)

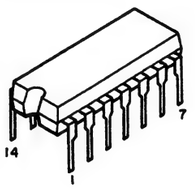


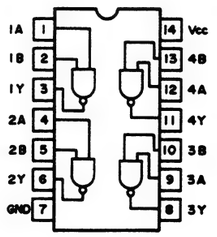
1 : Output
2 : V_{DD}
3 : GND

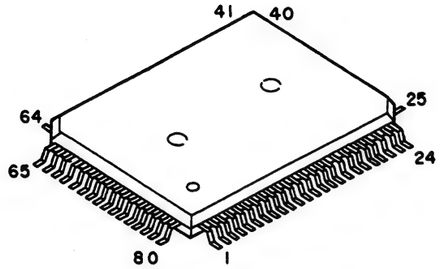
BA15218 (IC503)



HD74HC00P (IC602)







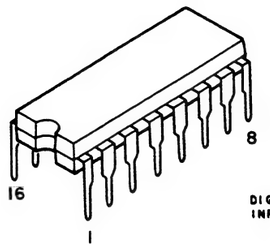
CXD2500AQFP (IC681)

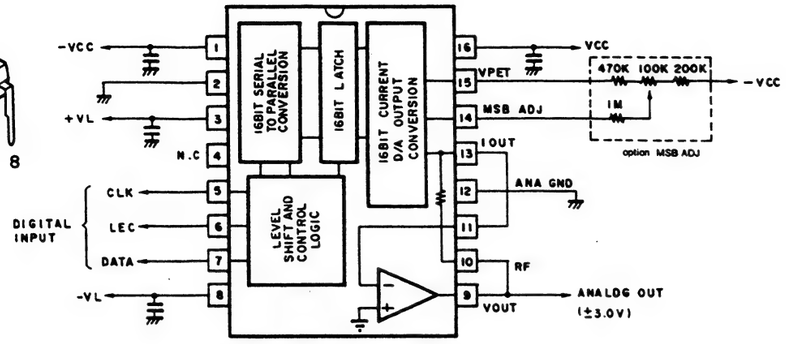
● CXD2500AQFP Pin Function Table

Pin no.	Pin symbol	I/O		Pin description
1	FOK	I		Focus OK input pin. Used in SENS output and the servo auto sequencer.
2	FSW	O	Z,0	Output filter switching output of the spindle motor.
3	MON	O	1,0	On-off control output of the spindle motor.
4	MDP	O	1,Z,0	Servo control of the spindle motor.
5	MDS	O	1,Z,0	Servo control of the spindle motor.
6	LOCK	O	1,0	Samples GFS at 460 Hz. When GFS is "H", H is output. L is output when there is "L", 8 times in succession.
7	NC	–		
8	VCOO	O	1,0	Oscillation circuit output for analog EFM PLL.
9	VCOI	I		Oscillation circuit output for analog EFM PLL. f_{LOCK}=8.6436 MHz.
10	TEST	I		Test pin, always grounded.
11	PDO	O	1,Z,0	For charge pump used with analog EFM PLL.
12	Vss			Ground
13	NC	–		
14	NC	–		
15	NC	–		
16	VPCO	O	1,Z,0	PLL charge pump output used for vari-pitch.
17	VCKI	O		Clock input f_{CENTER} from the external VCO for varipitch equals 16.9344 MHz.
18	FILO	O	Analog	Filter output (slave = digital PLL) for master PLL.
19	FILI	I		Filter input for master PLL.
20	PCO	O	1,Z,0	Charge pump output for master PLL.
21	AVss			Analog ground.
22	CLTV	I		VCO control voltage input for master.
23	AV_{DD}			Analog supply (+5 V)
24	RF	I		EFM signal input
25	TEST2	I		Grounded
26	TEST3	I		Grounded
27	ASYO	O	1,0	EFM full-swing output. (L = Vss, H = V_{DD})
28	TEST4	I		Grounded
29	NC	–		
30	PSSL	I		Switching input for the audio data output mode. Serial output with "L" and parallel output with "H".
31	WDCK	O	1,0	D/A interface for 48-bit slot. Word clock f = 2Fs.
32	LRCK	O	1,0	D/A interface for 48-bit slot. LR clock f = Fs.
33	V_{DD}			Supply (+5 V)
34	DA16	O	1,0	DA16 (MSB) output when PSSL = 1. Serial data of the 48-bit slot when PSSL = 0. (2s' COMP, MSB first.)
35	DA15	O	1,0	DA15 output when PSSL = 1. Bit clock of the 48-bit slot when PSSL = 0.
36	DA14	O	1,0	DA14 output when PSSL = 1. Serial data of the 64-bit slot when PSSL = 0. (2s' COMP, LSB first.)
37	DA13	O	1,0	DA13 output when PSSL = 1. Bit clock of the 64-bit slot when PSSL = 0.
38	DA12	O	1,0	DA12 output when PSSL = 1. LR clock of the 64-bit slot when PSSL = 0.
39	DA11	O	1,0	DA11 output when PSSL = 1. GTOP output when PSSL = 0.
40	DA10	O	1,0	DA10 output when PSSL = 1. XUGF output when PSSL = 0.
41	DA09	O	1,0	DA09 output when PSSL = 1. XPLCK output when PSSL = 0.
42	DA08	O	1,0	DA08 output when PSSL = 1. GFS output when PSSL = 0.
43	DA07	O	1,0	DA07 output when PSSL = 1. RFCK output when PSSL = 0.
44	DA06	O	1,0	DA06 output when PSSL = 1. C2P0 output when PSSL = 0.
45	DA05	O	1,0	DA05 output when PSSL = 1. XRAOF output when PSSL = 0.
46	DA04	O	1,0	DA04 output when PSSL = 1. MNT3 output when PSSL = 0.
47	DA03	O	1,0	DA03 output when PSSL = 1. MNT2 output when PSSL = 0.
48	DA02	O	1,0	DA02 output when PSSL = 1. MNT1 output when PSSL = 0.
49	DA01	O	1,0	DA01 output when PSSL = 1. MNT0 output when PSSL = 0.
50	APTR	O	1,0	Control output for aperture correction. "H" with Rch.
51	APTL	O	1,0	Control output for aperture correction. "H" with Lch.
52	Vss			Ground
53	XTAI	I		16.9344 MHz x'tal oscillator circuit input. Or 33.8688 MHz input.
54	XTAO	O	1,0	16.9344 MHz x'tal oscillator circuit input.
55	XTSL	I		X'tal selection input pin. "L" when the x'tal is 16.9344 MHz and "H" when the x'tal is 33.8688 MHz.
56	FSTT	O	1,0	2/3 frequency division output of pins 53 and 54. Does not change with vari-pitch.
57	C4M	O	1,0	4.2336 MHz output. Changes simultaneously when varypitch is applied.
58	C16M	O	1,0	16.9344 MHz output. Changes simultaneously when varypitch is applied.
59	MD2	I		Digital-Out on/off control. H when on and L when off.
60	DOUT	O	1,0	Digital-out output pin.
61	EMPH	O	1,0	When the playback disc has emphasis, "H" is output. "L" is output when there is no emphasis.
62	WFCK	O	1,0	WFCK (Write Frame Clock) output.
63	SCOR	O	1,0	"H" output when either sub code sync S0 or S1 is detected.
64	SBSO	O	1,0	Sub P through W serial output.
65	EXCK	I		Clock input for SBSO read-out use.
66	SQSO	O	1,0	SubQ 80 bit and PCM peak level data 16-bit output.
67	SQCK	I		Clock input for SQSO read-out use.
68	MUTE	I		Mute L is cancelled with H.
69	SENS	–	1,Z,0	SENS output. Output to CPU.
70	XRST	I		System set. Reset with "L".
71	DATA	I		Serial data input from CPU.
72	XLAT	I		Latch input from CPU. Latches serial data on the fall.
73	V_{DD}			Supply (+5 V)
74	CLOK	I		Serial data transfer clock input from CPU.
75	SEIN	I		Sense input from SSP.
76	CNIN	O		Count signal input of number of track jumps.
77	DATO	O	1,0	Serial data output to SSP.
78	XLTO	O	1,0	Serial data latch output to SSP. Latches on the fall.
79	CLKO	O	1,0	Serial data transfer clock output to SSP.
80	MIRR	I		Mirror signal input. Used in jumps of 128 tracks or more with an auto sequencer.

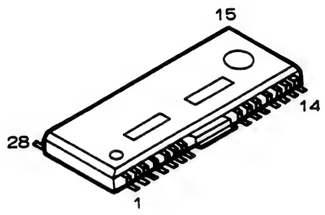
CD PLAYER SECTION

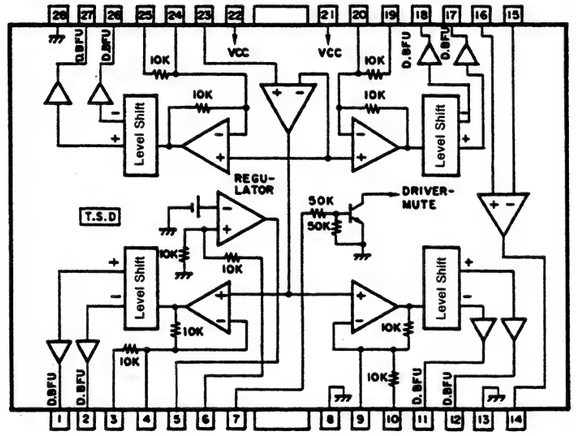
PCM61P-L (IC203, 204)



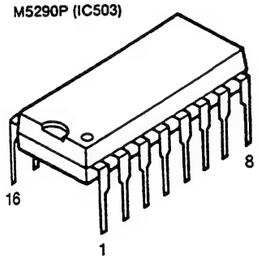


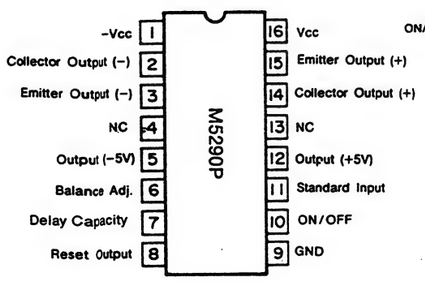
BA6296FP (IC502)



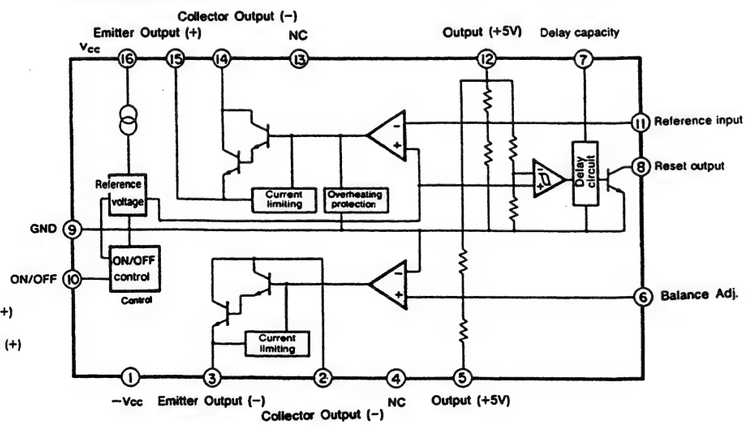


M5290P (IC503)

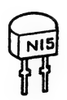




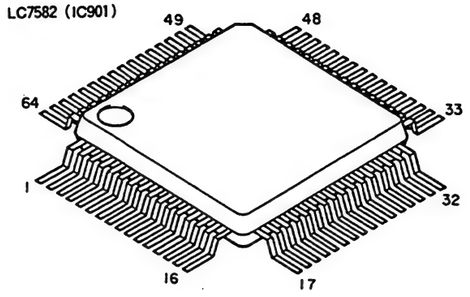
BLOCK DIAGRAM



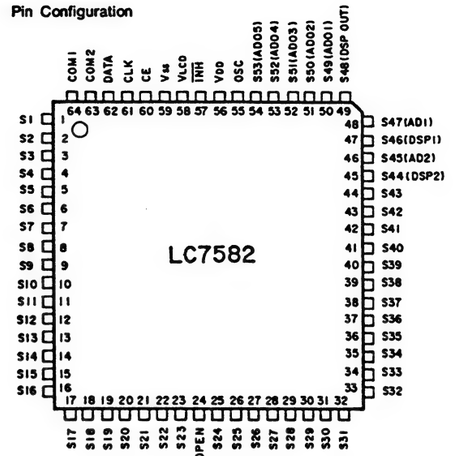
● IC PROTECTOR ICP-N15 (IC501, 502)



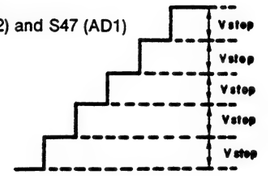
LC7582 (IC901)



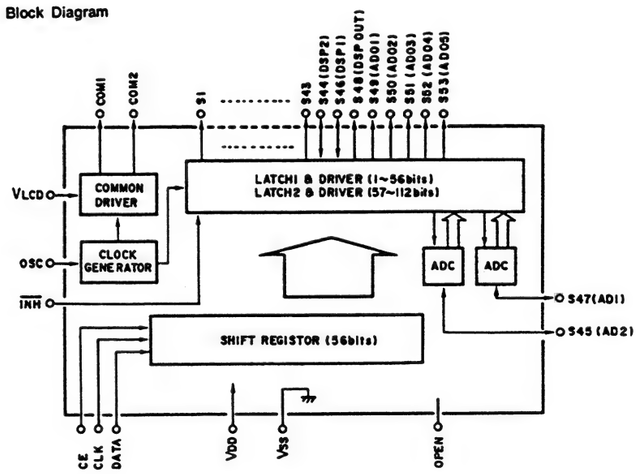
Pin Configuration



Step Voltage Difference
Input voltage of S45 (AD2) and S47 (AD1)



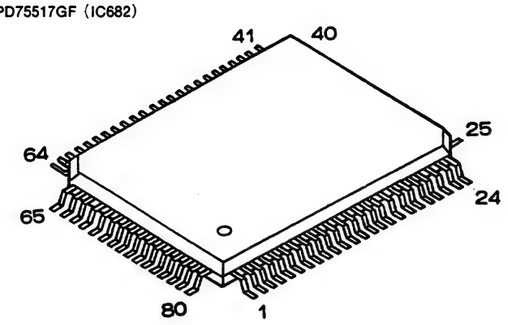
Block Diagram

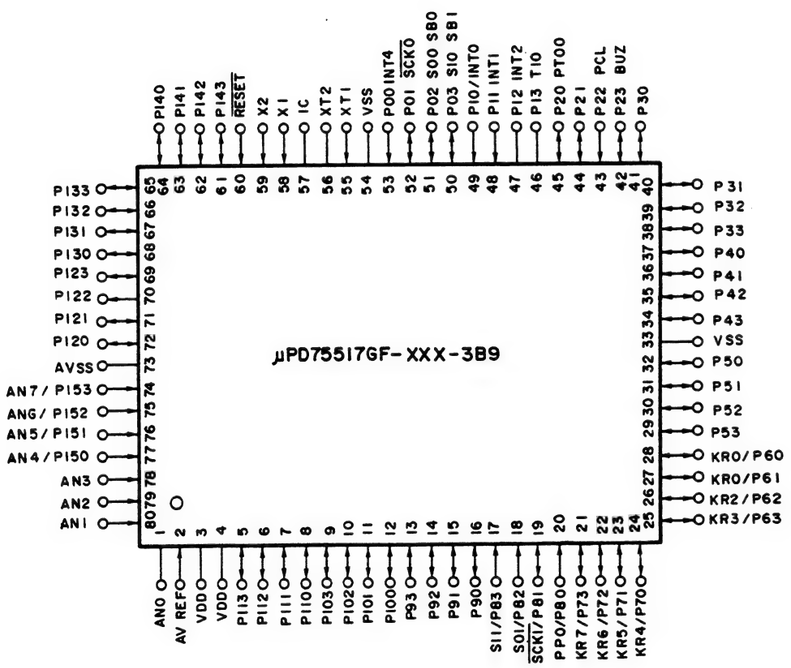


Pin Description

S1~S13	:	Segment output pins
S46 (DSP1), S44 (DSP2)	:	Segment output or DSP input pins
S47 (AD1), S45 (AD2)	:	Segment output or AD input pins
S48 (DSPOUT)	:	Segment output or DSP output pins
S49~S53 (AD01~5)	:	Segment output or AD output pins
COM1.2	:	Common output pins (At 1/1 duty, only COM1 is used and COM2 is open)
V_{LCD}	:	Pin for LCD bias voltage setting
OSC	:	Oscillation pin
CE, CLK, DATA	:	Input pins for serial data transfer
V_{SS}, V_{DD}	:	Supply pins
$\overline{INH}$	:	Display-off input pin (Valid only with the output driver. As a result, the transfer of serial data is possible while the display is off.)
OPEN	:	No connection

μPD75517GF (IC682)





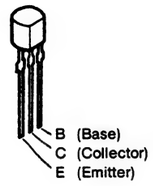
● Pin Description

No.	Board Name	Function Name	Function
1	AN0	NC	Ground (In)
2	AVref	NC	Ground (In)
3	VDD		5 V
4	VDD		5 V
5	P113	NC	Open (Out)
6	P112	PPLYON	PLAY indication
7	P111	PAUTO	AUTO, OFF indication
8	P110	PDPLAY	PLAY indication
9	P103	XRST OUT	Reset signal for DSP
10	P102	POWER OFF OUT	Output for power on/off control
11	P101	DIGITAL OFF OUT	Output for digital on/off control
12	P100	STANDBY OUT	Output for power on/off control
13	P93	PINITIAL	Test pin (Open)
14	P92	PEDIT	Test pin (Open)
15	P91	PSEARCH	Test pin (Open)
16	P90	PDOUT	Test pin (Open)
17	P83/SI1	NC	Ground (In)
18	P82/SO1	PLCDDATA	Data for the LCD
19	P81/SCK1	PLCDCLK	Clock for the LCD
20	P80/PPO	NC	Ground (In)
21	P73/KR7	KS3 OUT	Key scan output
22	P72/KR6	KS2 OUT	Key scan output
23	P71/KR5	KS1 OUT	Key scan output
24	P70/KR4	KS0 OUT	Key scan output
25	P63/KR3	KS7 OUT	Key scan output
26	P62/KR2	KS6 OUT	Key scan output
27	P61/KR1	KS5 OUT	Key scan output
28	P60/KR0	KS4 OUT	Key scan output
29	P53	KS8 OUT	Key scan output
30	P52	KS9 OUT	Key scan output
31	P51	G1	Open (Out)
32	P50	G2	Open (Out)
33	VSS		Ground (In)
34	P43	CD ON/OFF IN	Input for digital on/off control
35	P42	A.P. SEL IN	Selects the auto power on/off function
36	P41	NC	Ground (In)
37	P40	NC	Ground (In)
38	P33	PLCDOFF OUT	INH for the LCD
39	P32	PLCDCE OUT	CE for the LCD
40	P31	G3	Open (Out)
41	P30	G4	Open (Out)
42	P23/BUZ	PSVCDATA OUT	Data output for the servo control signal and D and F.
43	P22/PCL	PSVCXLT OUT	Servo control signal latch output
44	P21	PSVCCLK	Clock output for the servo control signal and D and F.
45	P20/PT00	PLASER OUT	Laser on/off control output
46	P13/T10	PSENSE IN	Servo condition detection signal input
47	P12/INT2	PGFS IN	Rotation sync signal input from DSP
48	P11/INT1	PSCOR IN	Sub code sync signal input
49	P10/INT0	SERIAL SIG IN	Denon bus input
50	P03/SI0	PSUBQ IN	Sub code data input
51	P02/S00	NC	Open (Out)
52	P01/SCK0	PSQCK OUT	Clock output for sub code reading
53	P00/INT4	50/60 IN	50 Hz/60 Hz input
54	VSS		Ground
55	XT1	NC	Ground
56	XT2	NC	Open
57	IC	NC	Ground
58	X1		4 MHz Cell lock
59	X2		4 MHz Cell lock
60	RESET		Reset signal input
61	P143	PFOK IN	Focus OK signal input
62	P142	PSWOP IN	Loader open position detection
63	P141	PSWCL IN	Loader close position detection
64	P140	PSWPMD IN	Pickup inner track position detection
65	P133	PMVCL OUT	Loader drive signal
66	P132	PMVOP OUT	Loader drive signal
67	P131	D. MUTE OUT	Muting output for the LSI
68	P130	SERIAL SIG OUT	Denon bus output
69	P123	PDFLATCH OUT	Latch output for D and F
70	P122	A. MUTE OUT	Audio muting output
71	P121	PEMPHA OUT	Signal output with emphasis control
72	P120	PDIRC OUT	Servo control signal output
73	AVSS	NC	Ground
74	AN7/P153	KR0 IN	Key return input
75	AN6/P152	KR1 IN	Key return input
76	AN5/P151	KR2 IN	Key return input
77	AN4/P150	KR3 IN	Key return input
78	AN3	NC	Ground (In)
79	AN2	NC	Ground (In)
80	AN1	NC	Ground (In)

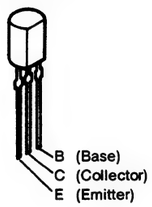
CD PLAYER SECTION

● Transistors

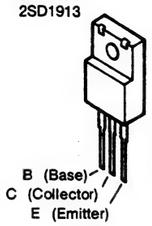
2SA1015 (GR)



2SB562 (C)
2SD468 (C)

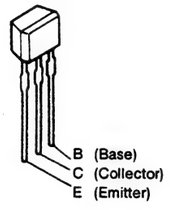


2SB1274
2SD1913



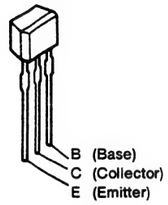
PNP Type

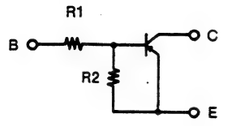
2SC2458 (Y/GR)



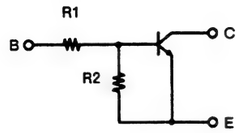
NPN Type

DTA114ES PNP Type
DTC114ES | NPN Type
DTC144ES



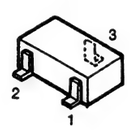


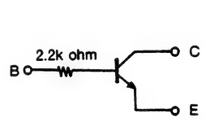
	R1	R2
DTA114ES	10k ohm	10k ohm



	R1	R2
DTC114ES	10k ohm	10k ohm
DTC144ES	47k ohm	47k ohm

DTC323TK

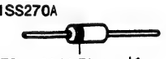




1 : GND / Emitter
2 : In / Base
3 : Out / Collector

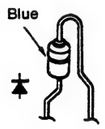
● Diodes

1SS270
1SS270A

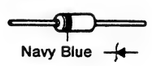


1SS270 : Light Blue
1SS270A : Navy Blue

1SR35-200A

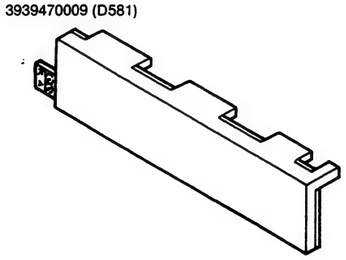


HZS6A-1
HZS6B-1

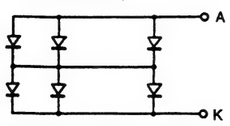


● LED ASS'Y

SLF-351D
Part No. 3939470009 (D581)



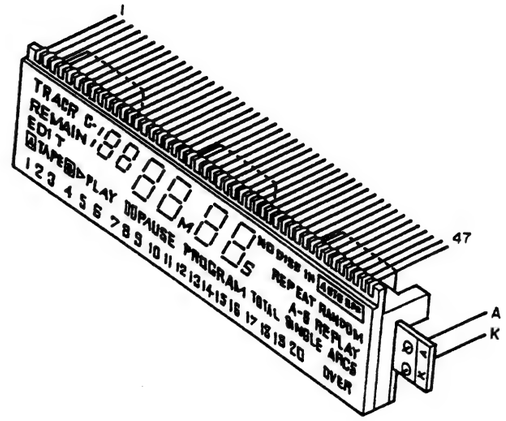
● Connection



2 Series 22 Para = 44 Chip

● LCD ASS'Y (8233JP)

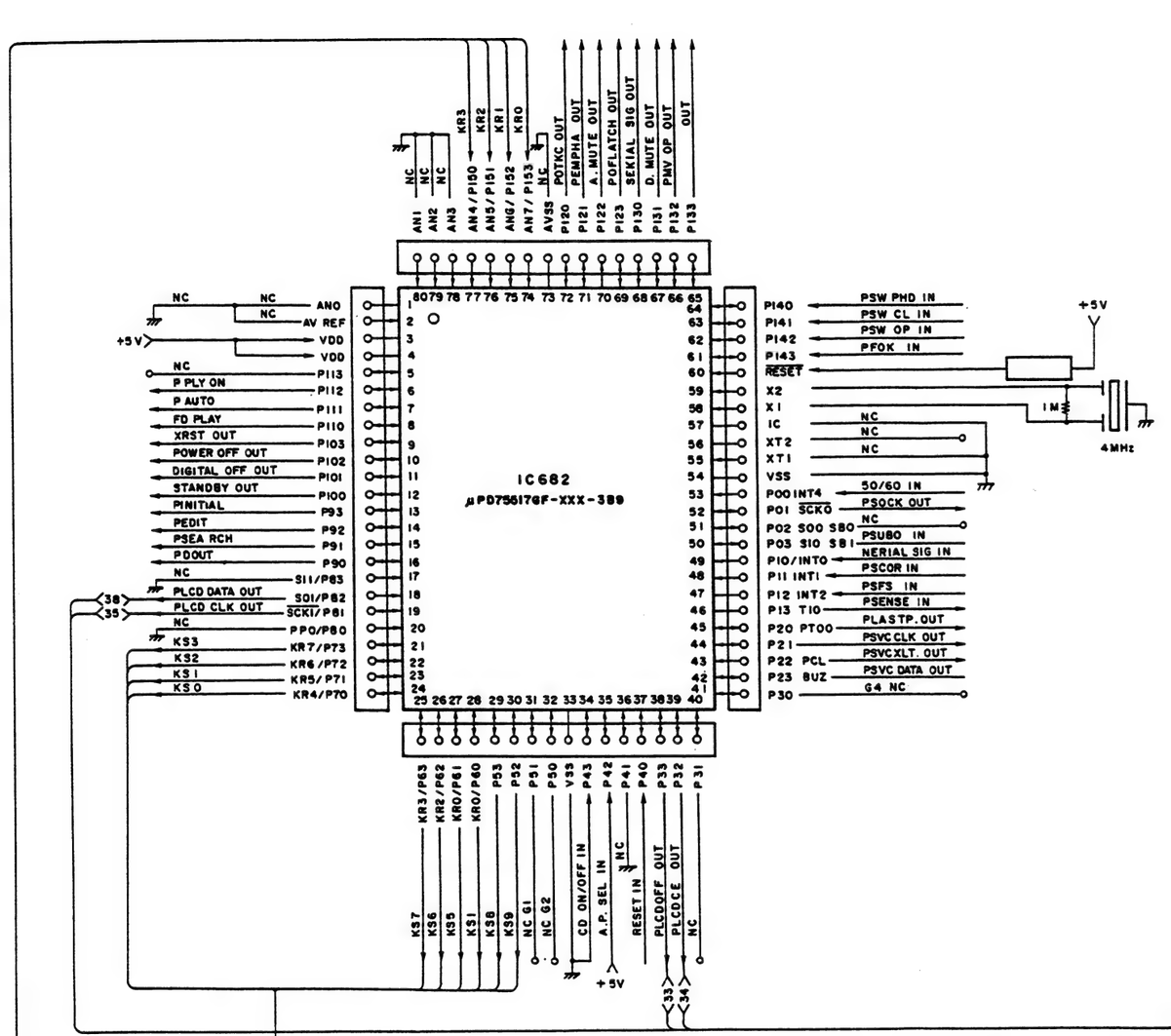
Part No. 3934141003

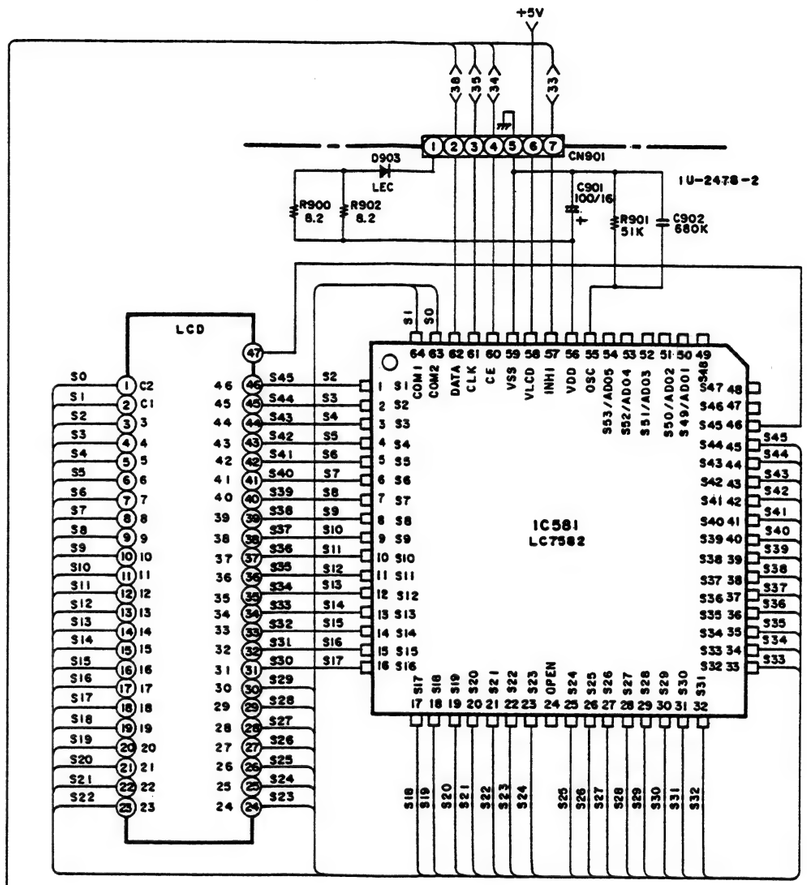


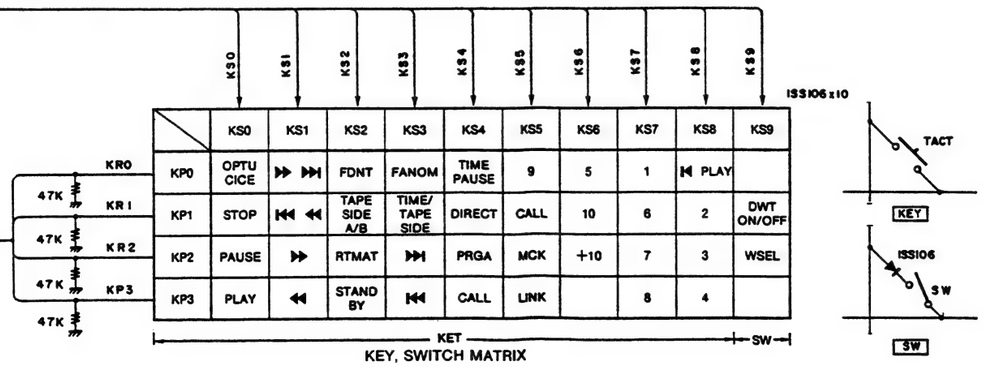
NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
COM1	–	COM	6	PAUSE	4	B	2	TRACK	A	C-	1f	1a	1b	2d	2a	2g	3d	3e	3a	3b	4e	4f	4b	M
COM2	COM	–	5	PLAY	3	TAPE	1	REMAIN	EDIT	1d	1e	1g	1c	2e	2f	2b	2c	3f	3g	3c	4d	4a	4g	4c

NO.	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
COM1	TOTAL	5e	5f	5a	5c	6f	6a	6b	17	B	DISC	IN	SINGLE	ARCS	RANDOM	AUTO	20	16	14	12	10	8	7b
COM2	PROGRAM	5d	5g	5b	6d	6e	6g	6c	S	A-	NO	REPEAT	18	OVER	REPLAY	OFF	19	15	13	11	9	7	7c

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM







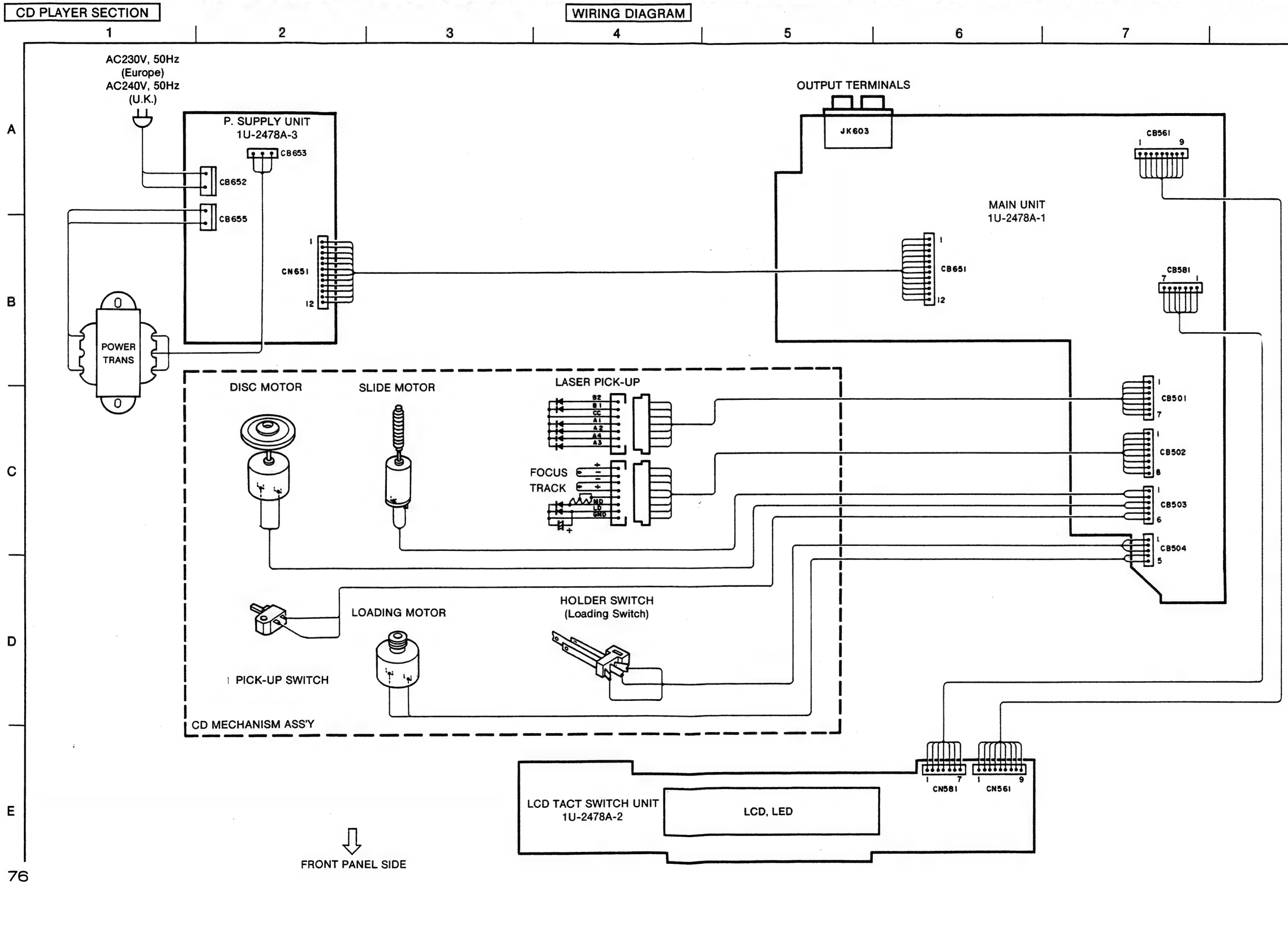
	KS0	KS1	KS2	KS3	KS4	KS5	KS6	KS7	KS8	KS9
KP0	OPTU CICE	▶▶ ▶▶|	FDNT	FANOM	TIME PAUSE	9	5	1	|◀◀ PLAY	
KP1	STOP	|◀◀ ◀◀	TAPE SIDE A/B	TIME/ TAPE SIDE	DIRECT	CALL	10	6	2	DWT ON/OFF
KP2	PAUSE	▶▶	RTMAT	▶▶|	PRGA	MCK	+10	7	3	WSEL
KP3	PLAY	◀◀	STAND BY	|◀◀	CALL	LINK		8	4	

ISS106±10

KEY, SWITCH MATRIX

CD PLAYER SECTION

WIRING DIAGRAM



MECHANISUM

EYE PATERN
PLAY
+1.5V
+0.5V
STOP : 0V

FOCUS SEARCH
+2.2V
+1.9V

PLAY
1.0Vp-p
4.4V

PICK UP
B2 B1 CC A1 A2 A4 A3

CB501
TRC TRA FDV FC1 FC2 FC4 FC3

CB502
FAC GND GND TAC VR MD LD GND

FOCUS +
FOCUS −
TRACK −
TRACK +
MD
LD
GND

TRACK JUMP
1Vp-p
+4.6V
+4.4V
+3.2V

INNER GTROOVE
:+2.1V
OUTER GTROOVE
:+6V
PLAY : 4.2V

SLIDE MOTOR

CB503
PMD SW

DISC MOTOR
OPEN: +5.5V
CLOSE: −4.5V

TRAY
OPEN
CLOSE

LOADING MOTOR

TP501(NH)
HF
VC

TP502(NH)
TO
VC

R501 47
R502 33k
R503 1k
R504 22k
R505 2.4k
R506 33k
R507 27k
R508 2.4k
R509 200
R510 1.8k
R511 8.2k
R512 10k
R513 15k
R514 9.1k
R515 82k
R516 12k
R517 10k
R518 15k
R519 10k
R520 15k
R521 100
R522 3.3k
R523 10k
R524 10k
R525 22
R526 12k
R527 10k
R529 10k
R530 91k
R531 220
R532 47k
R533 3.3k
R534 10k
R535 10k
R536 6.8k
R537 22k
R538 100
R539 10k
R540 6.8k
R541 7.5k
R542 10k
R544 22
VR501 5k
VR502 100k

C501 0.01
C502 100/6.3
C503 1000p
C504 0.47
C505 10/16
C506 120p
C507 10/16
C508 0.0027
C509 10/16
C510 0.033
C511 2200p
C512 0.015
C513 10/16
C514 0.47
C515 0.01
C516 1000p
C517 0.01
C518 0.01
C519 1/50
C520 5600p
C521 0.22/50
C522 10/16
C523 0.0056
C524 0.022
C525 3.3
C526 100/6.3
C527 0.01
C528 47/16
C529 0.056
C530 0.027
C531 0.15
C532 22/16
C533 0.22
C534 1000p
C535 390p
C536 0.01
C590 0.01

IC501
HA12158

TR501
2SA1015

TR502
BC368

TR503
BC369

TR504
BC368

TR505
BC369

IC503
BA15218

IC502
BA6296FP

W1
W2
W3
W4

A12
A23
A24

SIGNAL
+B LINE
−B LINE

C804
100p

C688
100/6.3

C689
0.01

R694
10k

R695
10k

TR659
DTC114
ES

R667 10k

ON : +5V
OFF : 0V

R664
4.7

IU−2478A−1
MAIN UNIT

A
CHII
+
−

EK12430
CHI DC 500mV/div
NORMAL 200ms/div
600mV

D2
ISS270A

TR3
2SB662C

R4
1k

R3
100

TR1
2SD667
A(C)

D1
ISS270A

TR2
2SD667A
(C)

R2
1k

R1
1k

IU−2551

OR

D052
ISS270A

TR053
2SB662C

R054
1k

R053
100

TR051
2SD667
A(C)

D051
ISS270A

TR052
2SD667A
(C)

R052
1k

R051
1k

IU−2478A−6

−5V
L0 L1 L2 L3 L4 L5

CB581(PH)
CN581

CB561
(PH)
K0 K1 K2 K3 K4 K5 K6 K7 K8

CN561

K8

DISPLAY
IU−2478A−2
LCD, TACT SWITCH UNIT

D581
LED

C581
680p

C582
100/16

R581
51k

LCD581
LCD8233JP

IC581
LC7582

KEY MATRIX

D561 D562 D563 D564
ISS270A

C801
0.01

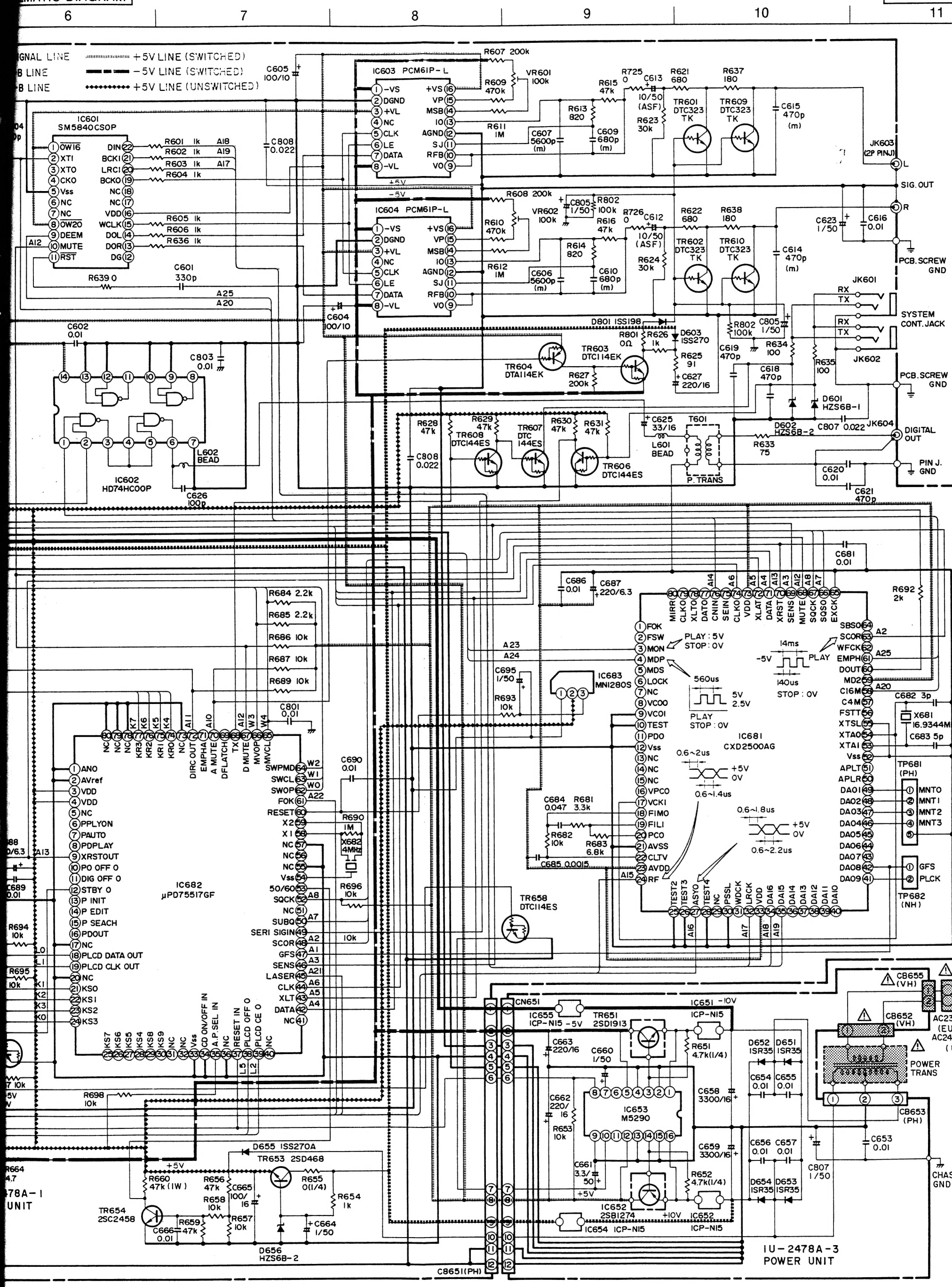
R561 47k
R562 47k
R563 47k
R564 47k

RAND S561
O/C S562
FF S563
EDIT S564
STP S565
REV S566
TAPE SIDE A/B S567
PAUSE S568
REPEAT S569
RLAY S570
STAND BY S571

D565 D567 D568
HZS6B-1

R565 47k
R566 47k
R567 47k
R568 47k

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.



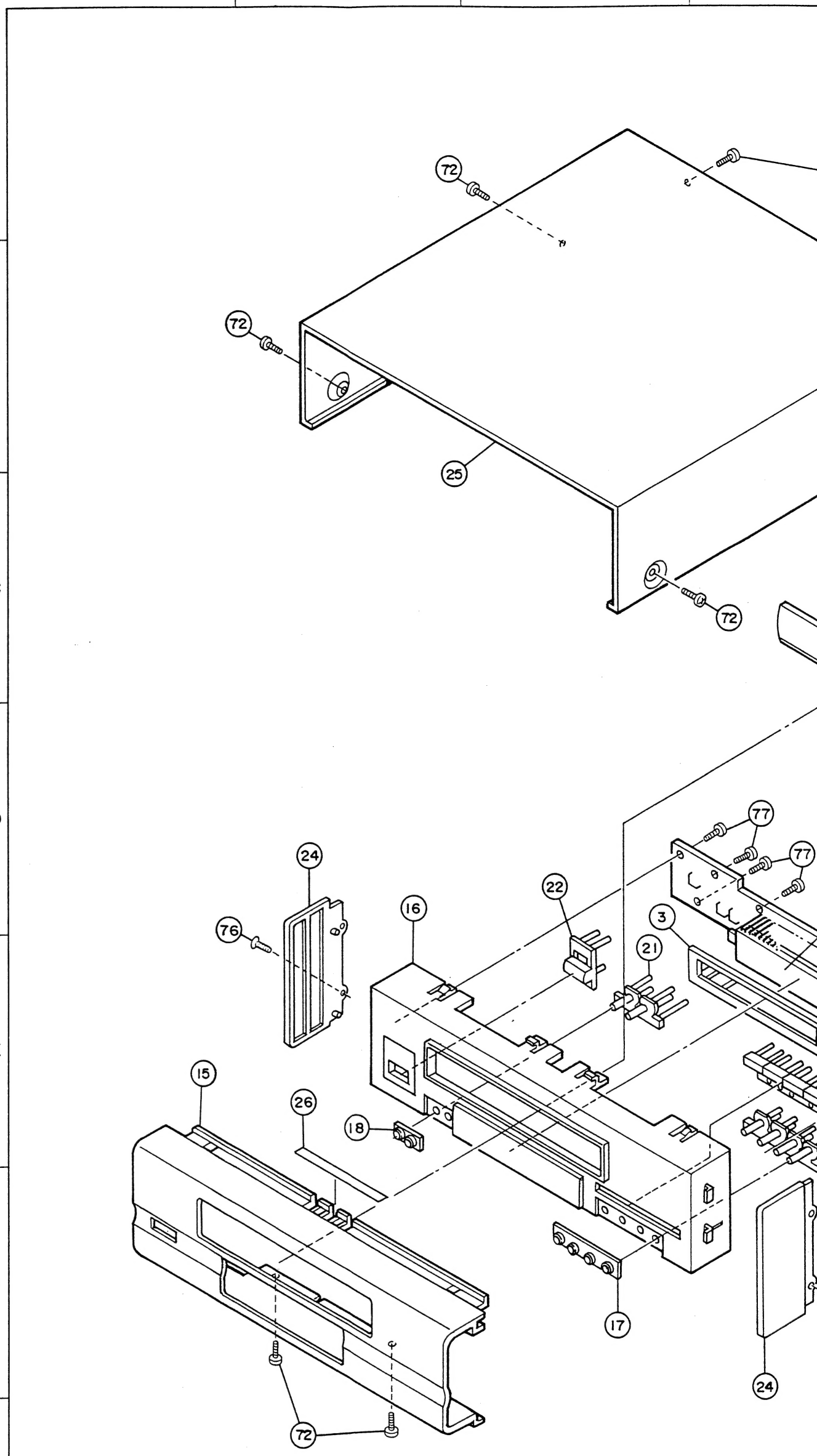
CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit is defective.

WARNING
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES
ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

EXPLODED VIEW OF PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	1U- 2478 A	P.W.Board Unit Assy		1S
1-1	—	Main Unit		(1)
1-2	—	LCD,Tact Switch Unit		(1)
1-3	—	Power Unit		(1)
1-4	—	Audio Unit		(1)
2	393 4141 003	LCD (8233JP)		1
3	449 0057 009	LCD Holder		1
4	—	—		
5	204 8413 000	2 P Pin Jack(C-GND)		1
6	204 8366 005	1 P Pin Jack		1
7	204 8421 005	Mini Jack		2
◉ 8	411 1184 332	Main Chassis		1
9	104 0237 201	Foot Assy		4
◉ 10	105 1044 221	Rear Panel	Europe model	1
◉ 10	105 1044 234	Rear Panel	U.K. model	1
◉ 11	412 2814 028	Card Spacer(L=10)		1
◉ 12	412 3548 005	P.W.B Catcher		2
13	449 0073 119	Mech. Holder		3
◉ 14	337 0017 018	CD Mech. Unit		1
◉ 15	144 2212 219	Front Panel		1
◉ 16	146 1402 217	Inner Panel Assy		1
17	146 1420 121	Knob Guide(Round)	4 Gang	1
18	146 1420 134	Knob Guide(Round)	2 Gang	1
19	113 1547 376	Push Knob(Play)	4 Gang	1
20	113 1549 044	Push Knob(Round)	4 Gang	1
21	113 1549 057	Push Knob(Round)	2 Gang	1
22	113 1460 013	Power Knob		1
23	146 1401 111	Loader Panel Assy		1
24	146 1411 211	Side Plate		2
◉ 25	102 0519 211	Top Cover		1
26	122 0183 007	Spacer	100X10Xt0.5	1
27	412 1965 004	P.C Support	L=24	1
28	409 0052 019	Holder(A)	L=33.6	1
◉ 29	412 3485 016	P.W.Bracket		2
30	513 9316 000	Rating Sheet	Europe model	1
30	513 9316 026	Rating Sheet	U.K. model	1
◉ 31	412 9337 003	Trans Bracket		1
△ 32	204 2091 000	AC Cord W/Conn.		1
△ 33	449 0056 008	Cord Bush		1
34	513 2066 001	:Laser Caution		1
△ 35	292 6002 000	Power Trans.	Europe model	1
△ 35	292 9651 005	Power Trans.	U.K model	1
★ 36	445 8004 007	Wire Clamper		1
37	—	—		
38	—	—		
39	513 0985 003	Inst. Label		1
★ 40	204 2307 028	7 P PH-PH Conn. Cord	CC501	1
★ 41	204 2306 032	8 P PH-PH Conn. Cord	CC502	1
SCREWS				
71	473 7002 018	Tapping Screw(S)3X8		11
72	473 7015 005	Tapping Screw(S)3X6	Black	19
73	473 7508 046	Tapping Screw(P)3X6		2
74	477 0064 107	Fixing Screw		2
75	473 7508 017	Tapping Screw(P)3X10	Black	3
76	473 7500 028	F.Tapping Screw(P)3X8		2
77	473 7505 007	Tapping Screw(P)2.6X8		9
78	473 7508 046	Tapping Screw(P)3X16		2
79	473 7004 003	Tapping Screw(S)4X8		2
80	—	—		
PACKING & ACCESSORIES (Not included EXPLODED VIEW)				
101	505 0241 005	Cabinet Cover		1
102	503 1062 106	:Cushion		1
103	503 1061 000	:Top Cushion		1
104	501 1657 007	:Carton Case		1
105				



NOTE ON PARTS LIST

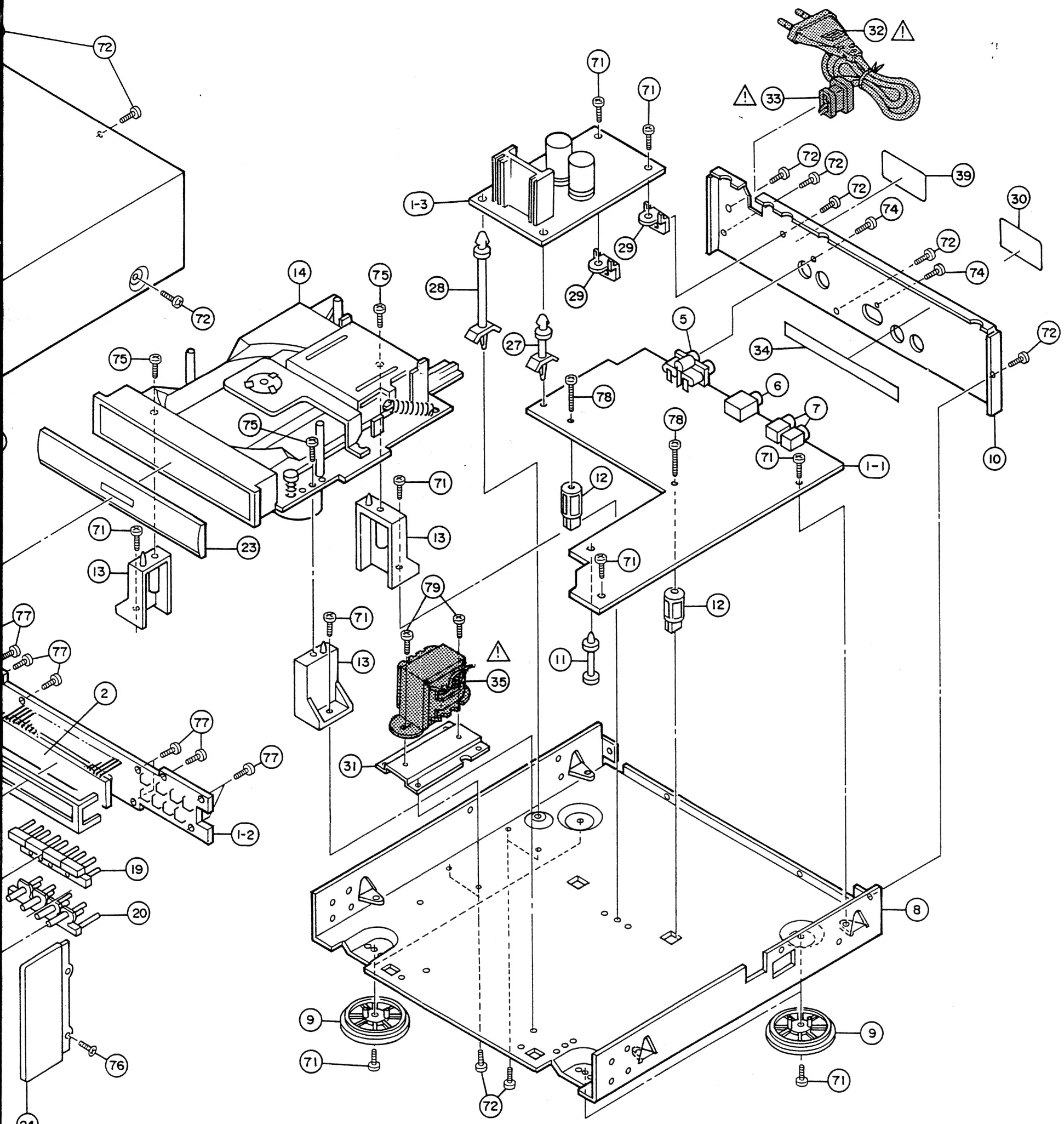
- Part indicated with the mark "◉" are not always in stock and possibly to take a long period of time for suppling, or in some supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:

Parts marked with this symbol △ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

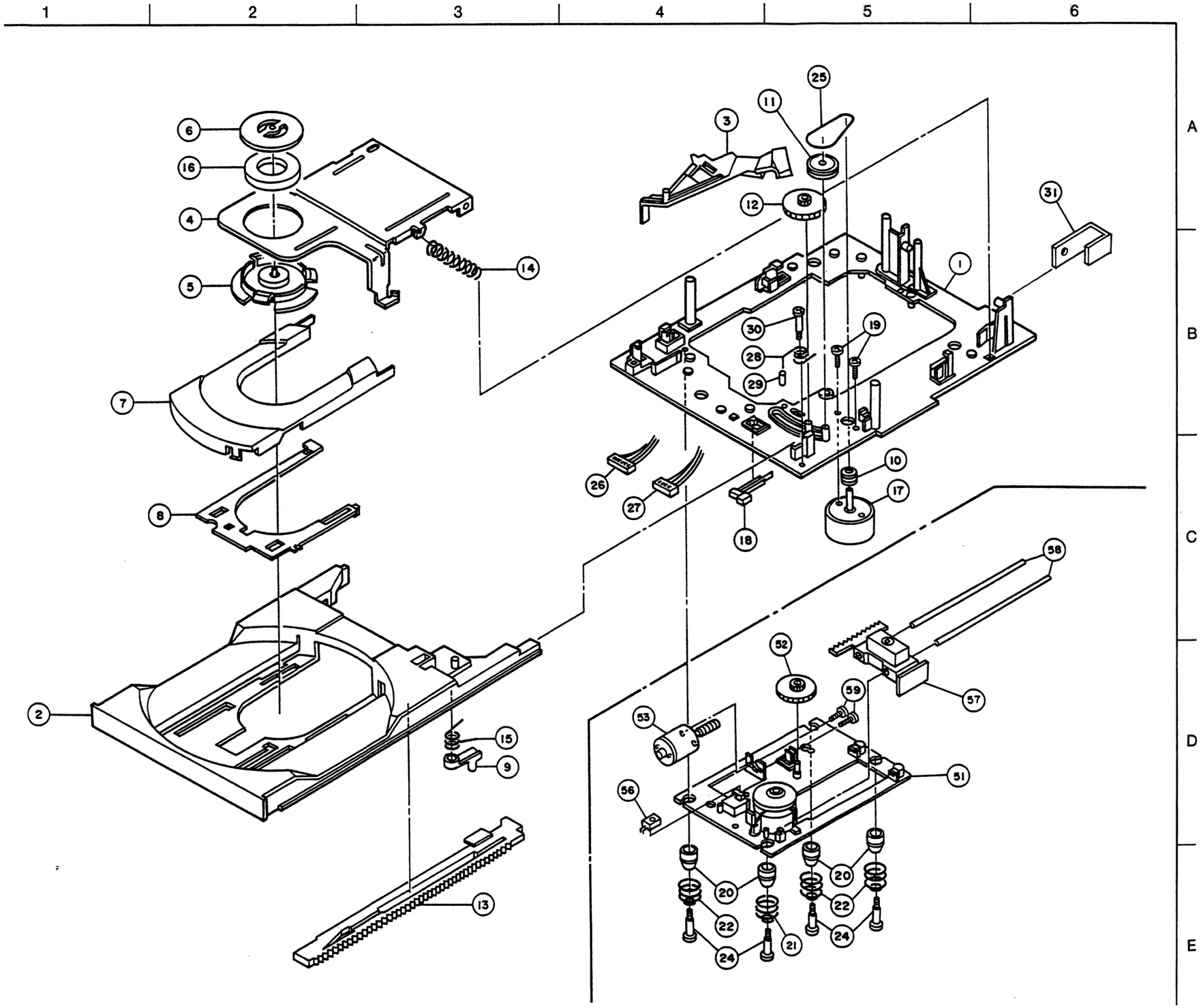
EXPLODED VIEW

4 | 5 | 6 | 7 | 8 | 9



ng, or in some case

CD MECHANISM Part No.: 3370017005



CD MECHANISM PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	9KA 81A2 95	Loading Plate Ass'y OS		1
1-1	—	Loading Plate		1
2	9KA 81G9 73	Tray 201		1
3	9KA 81G9 74	Switch Lever		1
4	9KA 81P4 62	Clamper Arm		1
5	9KA 81G9 75	Clamper		1
6	9KA 81P4 63	Clamper Plate		1
7	9KA 81G9 76	Disc Holder		1
8	9KA 81G9 77	Lifter Cam		1
9	9KA 81G9 78	Latch		1
10	9KA 81G2 35	Moter Pulley	Mold	1
11	9KA 81G1 22	Pulley Gear		1
12	9KA 81G1 23	Gear 3		1
13	9KA 81G5 81	Rack 11B		1
14	9KA 81S0 59	Clamp Spring		1
15	9KA 81S0 60	Latch Spring		1
16	9KA 82G0 57	Clamper Magnet		1
17	9KM 01T0 94	Motor	MDN-4RA3EZAS	1
18	9KS 01W0 51	Leaf Switch	LSC122338	1
19	9KM 20S0 04	Tams Screw	M2×4	2
20	9KA 82G0 56	Float Cushion M3		4
21	9KA 81S0 66	Float Spring M3A		1
22	9KA 81S0 67	Float Spring M3B		3
23	—	—		
24	9KA 81H0 85	Fixing Screw C		4
25	9KA 82G1 80	Belt 1.4×18.1		1
26	9KA 82G1 23	Connector Cord	CNW6PM3	1
27	9KA 82G1 24	Connector Cord	CNW5PM3	1
28	9KA 81S0 71	Tray Spring 201		1
29	9KA 82G1 84	UL Tube 2×5.5		1
30	9KA 82H0 35	Floater Screw RM		1
31				
32				
51	9KA 81A3 33	Spindle Motor (T/T) Ass'y	Including Motor. T/T	1
51-1	—	Unit Plate M3G2		1
52	9KA 81G9 66	Slide Gear T		1
53	9KA 81A2 90	Feed Motor Ass'y		1
53-1	—	F. Motor	RD-050Y	1
53-2	—	Warm Gear T		1
54	9KA 81A2 93	Turn Table Ass'y		1
54-1	—	Turn Table Plate		1
55	9KM 01T0 94	Motor	MDN-4RA3EZAS	1
56	9KS 01W0 56	Switch	SW-SPPB-11	1
57	9KA 81G7 49	Pickup M3	HOPM3TR	1
58	9KA 81H1 07	Guide Bar		2
59	9KM 20N0 03	Pan Screw	M2×3	4
60				
61				
62				